

# The Review of Metaphysics

A PERIODICAL THIRTIENLY  
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# The Review of Metaphysics

A Philosophical Quarterly

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# THE REVIEW OF METAPHYSICS

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## RELATIVITY AND THE ATOMICITY OF BECOMING

### I

#### INTRODUCTION

Both classical mechanics and the relativity theory allow that *an event* can occur successively *though not consecutively* at each of a continuum of spatial points. Thus, for example, if a body moves over a certain distance, its center of mass is presumed to coincide with each of a continuum of points *at corresponding instances*. This means that modern science affirms not only that an array of spatial points can have the ordinal structure of Cantor's linear continuum<sup>1</sup> but that *events* actually occur so as to exhibit that structure with respect to the ordering relation "later than." Thus, actual events are held to occur such that no event has an immediate temporal or spatial successor.

The scientific conception of change and motion raises two fundamental questions: (1) Is there any evidence that the temporal order of events cannot legitimately be postulated to be continuous in Cantor's sense? (2) Is it possible to account for such distinguishing properties of time as its possession of an "arrow" on the basis of (a) assuming that events constitute a continuous type of order in Cantor's sense, and (b) providing a coordinating definition for the ordering relation "later than"?

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<sup>1</sup> This structure is defined by the postulates for real numbers. The only property essential to our analysis is the *denseness* property. The latter ensures that between any two elements of the structure there is another.

We must raise these questions, since at least four philosophers of the present century have denied the *compatibility* of the temporal structure of actual events with the order defined by Cantor's linear continuum and have held that a description of physical change which is based on the latter type of order is incompetent to account for the "arrow" of time and for such features of actual events as the latter involves. The philosophers in question are Henri Bergson, William James, Alfred North Whitehead and Paul Weiss. Each of these thinkers makes reference to Zeno's paradoxes of motion in setting forth his arguments.<sup>2</sup>

We shall devote the first part of this paper to an examination of the views of these philosophers and will attempt to show that their arguments either have no bearing on the systems of those events which the relativity theory rightly postulates to be the basic entities of nature or that they are invalid. It is only after we have established the justification for postulating that actual events occur continuously in the sense of Cantor and have demonstrated the ability of a theory containing this postulate to furnish an articulation of the unique features of time that we shall be justified in proceeding to argue in the second part of this paper that a complete solution of Zeno's paradoxes of motion is possible on the basis of Cantorean conceptions when applied relativistically to both time and space.

## II

### TIME AND CHANGE IN JAMES, WHITEHEAD, WEISS, AND BERGSON

In his *Principles of Psychology*, William James analyzes *perceptual time*, and writes as follows:

... the practically cognized present is no knife-edge, but a saddle-back, with a certain breadth of its own on which we sit perched,

<sup>2</sup> See W. James, *Some Problems of Philosophy* (New York, 1911), chaps. X and XI; A. N. Whitehead, *Process and Reality* (New York, 1929) pp. 53, 103-107, 468, and *Science and the Modern World* (New York, 1925), pp. 182-186; H. Bergson, *Creative Evolution* (New York, 1944), pp. 335-340, and *Matière et Mémoire* (Geneva, 1946), pp. 194-200; P. Weiss, *Reality* (Princeton, 1938), chaps. VI and VII.



and from which we look in two directions into time. The unit of composition of our perception of time is a *duration*, with a bow and a stern, as it were — a rearward — and a forward-looking end. It is only as part of this *duration-block* that the relation of *succession* of one end to the other is perceived. . . . to sensible perception its elements are inseparable, although attention looking back may easily decompose the experience, and distinguish its beginning from its end.<sup>3</sup>

Here James tells us that upon resolving sensed duration into elements, we find that there is a "relation of *succession* of one end to the other." Thus we obtain elements which are related not only by the fact that one is later than another but also by being *consecutive*. It is clear that Kant was thinking of sensed time, when he held that this deliverance of our "inner sense" was the basis for counting in arithmetic. To express concisely the *joint* presence of the *two* relations of succession (i.e., being later than) and consecutivity among the elements of perceptual time, we shall use Weiss' apt terminology and say that the sensed events into which perceptual time can be resolved occur "pulsationally."<sup>4</sup> James emphasizes that all processes "like motion, change, activity" which he calls "things conceived as growing"<sup>5</sup> as distinct from "space, past time, existing beings" which he calls "things conceived as standing"<sup>6</sup> must have elements which occur both successively *and* consecutively. In discussing solutions of Zeno's paradoxes of motion such as Russell's which are based on the mathematical continuum. James writes:

On the discontinuity-theory, time, change, etc., would grow by finite buds or drops, either nothing coming at all, or certain units of amount bursting into being "at a stroke". . . . any amounts of time, space, change, etc., . . . would be composed of a finite number of minimal amounts of time, space, and change.

Such a discrete composition is what actually obtains in our perceptual experience. . . .<sup>7</sup>

<sup>3</sup> W. James, *The Principles of Psychology* (New York, 1950), pp. 609-610; see also pp. 621, 637.

<sup>4</sup> Weiss, *op. cit.*, p. 228.

<sup>5</sup> James, *Some Problems of Philosophy*, *op. cit.*, p. 167.

<sup>6</sup> *Idem.*

<sup>7</sup> *Ibid.*, pp. 154-155.

It seems to me however that Mr. Russell's statements dodge the real difficulty, which concerns the "growing" variety of infinity exclusively and not the standing variety, which is all that he envisages when he assumes the race already to have been run... The real difficulty may almost be called physical, for it attends the process of *formation* of the paths. Moreover, two paths are not needed — that of either runner alone, or even the lapse of empty time, involves the difficulty, which is that of touching a goal when an interval needing to be traversed first keeps permanently reproducing itself and getting in your way. ... who actually *traverses* a continuum, can do so by no process continuous in the mathematical sense. Be it short or long, each point must be occupied in its due order of succession, ... 'Enumeration' is, in short, the sole possible method of occupation of the series of positions implied in the famous race; ...<sup>8</sup>

... Such seems to be the nature of concrete experience, which changes always by sensible amounts, or stays unchanged. The infinite character we find in it is woven into it by our later conception indefinitely repeating the act of subdividing any given amount supposed. The facts do not resist the subsequent conceptual treatment; but we need not believe that the treatment necessarily reproduces the operation by which they were originally brought into existence.

The antinomy of mathematically continuous growth is thus but one more of those many ways in which our conceptual transformation of perceptual experience makes it less comprehensible than ever. That being should immediately and by finite quantities add itself to being, may indeed be something which an onlooking intellect fails to understand; but that being should be identified with the consummation of an endless chain of units (such as 'points'), no one of which contains any amount whatever of the being (such as 'space') expected to result, this is something which our intellect not only fails to understand, but which it finds absurd.<sup>9</sup>

... Better accept, as Renouvier says, the opaquely given data of perception, than concepts inwardly absurd.<sup>10</sup>

... Does reality grow by abrupt increments of novelty, or not? ... The mathematical definition of continuous quantity as 'that between any two elements or terms of which there is another term' is directly opposed to the more empirical or perceptual notion

<sup>8</sup> *Ibid.*, pp. 181-183, my italics in the case of the phrase "or even the lapse of empty time."

<sup>9</sup> The writer will show in a forthcoming paper that Cantor's theory enables us to treat an extensive continuum as an aggregate of unextended elements entirely without absurdity. This result will be assumed in the remainder of this paper and will be applied to the composition of a time interval out of instants.

<sup>10</sup> James, *Some Problems of Philosophy*, op. cit., pp. 185-186.

that anything is continuous when its parts appear as *immediate next neighbors, with absolutely nothing between*.<sup>11</sup>

A far more sophisticated form of James' position is developed by Whitehead, who writes:

... These possibilities of division constitute the external world a continuum. For a continuum is divisible: ...

The contemporary world as perceived by the senses is the datum for contemporary actuality, and is therefore *continuous-divisible but not divided*.<sup>12</sup>

Although this is an essentially Aristotelian conception of continuity, the challenge of Zeno has led Whitehead to deny that the process of becoming itself is continuous in Aristotle's sense of being potentially divisible. Whitehead says:

... Zeno understated his argument. He should have urged it against the current notion of time itself, and not against motion, which involves relations between time and space. For, what becomes has duration. But no duration can become until a smaller duration (part of the former) has antecedently come into being... The same argument applies to this smaller duration, and so on. Also the infinite regress of these durations converges to nothing — and even to the Aristotelian view there is no first moment.<sup>13</sup>

This doctrine is elaborated in *Process and Reality*, where Whitehead reasons as follows:

... the extensive continuity of the physical universe has usually been construed to mean that there is a continuity of becoming. But if we admit that 'something becomes' it is easy, by employing Zeno's method, to prove that there can be no continuity of becoming. There is a becoming of continuity, but no continuity of becoming. The actual occasions are the creatures which become, and they constitute a continuously extensive world. In other words, extensiveness becomes, but 'becoming' is not itself extensive.<sup>14</sup>

... In respect to time, this atomization takes the special form of the 'epochal theory of time.'<sup>15</sup> ... There conclusions are required by the consideration of Zeno's arguments, in connection with the presumption that *an actual entity is an act of experience*. The authority of William James can be quoted in support of this conclusion. ... James also refers to Zeno. In substance I agree with

<sup>11</sup> *Ibid.*, p. 187, my italics.

<sup>12</sup> *Ibid.*, p. 96, my italics.

<sup>13</sup> Whitehead, *Science and the Modern World*, op. cit., p. 186.

<sup>14</sup> Whitehead, *Process and Reality*, p. 53.

<sup>15</sup> For the epochal theory of time, see *Science and the Modern World*, op. cit., chap. VII.

his argument from Zeno: though I do not think that he allows sufficiently for those elements in Zeno's paradoxes which are the product of inadequate mathematical knowledge. But I agree that a valid argument remains after the removal of the invalid parts.<sup>16</sup>

What Whitehead regards as the viable content of Zeno's polemic is the argument resulting from an application of Zeno's reasoning in the "Dichotomy" to time intervals. Zeno's argument in that paradox can be interpreted to be the contention that motion cannot take place, since the runner must traverse half of a given interval *before* traversing the whole interval, and since this requirement must be met by the runner for every subinterval  $\frac{a}{2^n}$  of the total interval  $a$ . In view of the fact that the runner must traverse every interval  $\frac{a}{2^{n+1}}$  *before* traversing the interval  $\frac{a}{2^n}$ , it is incumbent upon him to traverse the infinite series

$$\dots + \frac{a}{2^3} + \frac{a}{2^2} + \frac{a}{2},$$

which is of ordinal type  $\omega$  and not of type  $\omega$ , i.e., is a regression and not a progression.

Upon application of this argument to the sensed flow of time,<sup>17</sup> Whitehead finds the following:

The argument... elicits a contradiction from the two premises: (i) that in a becoming something (*res vera*) becomes, and (ii) that every act of becoming is divisible into earlier and later sections which are themselves acts of becoming. ... Thus that which becomes during the whole second presupposes that which becomes during the first half-second. Analogously, that which becomes during the first half-second presupposes that which becomes during the first quarter second, and so on indefinitely. Thus if we consider the process of becoming up to the beginning of the second in question, and ask what then becomes, no answer can be given. ...

The difficulty is not evaded by assuming that something becomes at each non-extensive instant of time. For at the beginning of the second of time there is no next instant at which something can become.

Zeno in his "Arrow in Its Flight" seems to have had an obscure grasp of this argument. But the introduction of motion brings

<sup>16</sup> Whitehead, *Process and Reality*, pp. 105-106, my italics.

<sup>17</sup> Cf. Aristotle, *Physics*, 263<sup>a</sup>, 18-23.

in irrelevant details. *The true difficulty is to understand how the arrow survives the lapse of time.*<sup>18</sup>

The modification of the 'Arrow' paradox, stated above, brings out the principle that every act of becoming must have an immediate successor, if we admit that something becomes. For otherwise we cannot point out what creature becomes as we enter upon the second in question. . . .

The conclusion is that in every act of becoming there is the becoming of something with temporal extension; but that the act itself is not extensive, in the sense that it is divisible into earlier and later acts of becoming which correspond to the extensive divisibility of what has become.

. . . the doctrine is enunciated that the creature is extensive, but that its act of becoming is not extensive.<sup>19</sup>

In a similar vein, Weiss writes:

. . . Each instant (and each state) begins where another ends, for otherwise the world would disappear at the end of every instant and every change.<sup>20</sup>

. . . If there were no whole of time, there would be but a single instant which, having come out of non-being, must at once pass into it again, leaving nothing in its wake.<sup>21</sup>

. . . With James and Whitehead we must conclude that time comes in gulps and that what is, actually endures for an extensive instant.<sup>22</sup>

To this non-Cantorean doctrine concerning the structure of the elements of time, Weiss adds an important doctrine concerning the unique properties which he thinks distinguish time from other types of serial order.<sup>23</sup> Of these properties, we shall mention only the one which we shall have occasion to criticize from the point of view of the relativity theory. Concerning this property, Weiss writes as follows:

. . . But to assert that the moments of time form a series is to fall short of an essential characterization of time. . . . So far as the moments of time are viewed solely as being before and after one another, the relation that connects them could just as well be designated as a relation of logical priority, virtuous superiority or numerical

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<sup>18</sup> Whitehead, *Process and Reality*, p. 106, my italics.

<sup>19</sup> *Ibid.*, p. 107.

<sup>20</sup> Weiss, *op. cit.*, p. 233.

<sup>21</sup> *Ibid.*, p. 228.

<sup>22</sup> *Ibid.*, p. 233.

<sup>23</sup> A system (K, <) is said to be serially ordered by the relation <, if the latter is transitive, asymmetrical, and connexive.

inferiority. The time series, however, differs from these in that it is... transiently divided into three exclusive classes.

The common image of time is a line with an arrow-head, for such a line is extended and can be characterized in terms of a serial relation. But unless the line is marked off with three distinct colors, the image fails to mark an essential character of time. Time contains at least three moments which exclude one another — a present instant and two stretches, one future, the other past — and the three embody the whole extension of time...<sup>24</sup>

Since a line of three colors has its three dimensions copresent and is asymmetrical only by intent, time, if it is to be distinguished from its spatial image, must be recognized to have another feature, differentiating it from all other series and modes of extension. ... Passage is part of its essence.<sup>25</sup>

A more radically phenomenological theory of change and time than that of the three thinkers considered so far is offered by Bergson. James, Whitehead and Weiss hold that actual changes (events) occur pulsationally but that the extensive continuum resulting from their occurrence is continuous in the sense of being potentially divisible.<sup>26</sup> Bergson, however, asks us to consider only the properties of actual movements as we sense them and to agree that potential divisibility is a property of the geometrical paths covered by the acts of moving and not a property of the movements themselves. He holds each uninterrupted instance of movement to be absolutely indivisible regardless of the length of time which it requires. Bergson writes:

*Tout mouvement, en tant que passage d'un repos à un repos, est absolument indivisible.*

Il ne s'agit pas ici d'une hypothèse, mais d'un fait...<sup>27</sup>

... Mais il ne faudrait pas confondre les données des sens, qui perçoivent le mouvement, avec les artifices de l'esprit qui le recompose. Les sens, laissés à eux-mêmes, nous présentent le mouvement réel, entre deux arrêts réels, comme un tout solide et indivisé. ...

... l'espace traversé est divisible à l'infini, et comme le mouvement s'applique, pour ainsi dire, le long de la ligne qu'il parcourt, il paraît solidaire de cette ligne et divisible comme elle. ... par cela seul que vous vous représentez le mouvement, tour à tour, en ces

<sup>24</sup> Weiss, *op. cit.*, pp. 221-222.

<sup>25</sup> *Ibid.*, pp. 225-226.

<sup>26</sup> See Whitehead, *Process and Reality*, p. 104; Weiss, *op. cit.*, p. 225, section β; and James, *Some Problems of Philosophy*, *op. cit.*, pp. 185, 155.

<sup>27</sup> Bergson, *Matière et Mémoire*, *op. cit.*, p. 194.



différents points, vous l'y arrêtez nécessairement; ... Vous substituez la trajectoire au trajet, et parce que le trajet est sous-tendu par la trajectoire, vous croyez qu'il coïncide avec elle. Mais comment un progrès coïnciderait-il avec une chose, un mouvement avec une immobilité? <sup>28</sup>

Ce qui facilite ici l'illusion, c'est que nous distinguons des moments dans le cours de la durée, comme des positions sur le trajet du mobile. ... et de ce que cette ligne est divisible en parties, et de ce qu'elle se termine par des points, on ne doit conclure ni que la durée correspondante se compose de parties séparées ni qu'elle soit limitée par des instants.

Les arguments de Zénon d'Élée n'ont pas d'autre origine que cette illusion. Tous consistent à faire coïncider le temps et le mouvement avec la ligne qui les sous-tend, à leur attribuer les mêmes subdivisions, enfin à les traiter comme elle. <sup>29</sup>

Bergson continues his polemic against "cinematographic" interpretations of sensed motion in his *Creative Evolution*, where he writes:

... every attempt to reconstitute change out of states implies the absurd proposition, that movement is made of immobilities. <sup>30</sup>

... The truth is that mathematics, as we have tried to show in a former work, deals and can deal only with lengths. It has therefore had to seek devices, first, to transfer to the movement, which is not a length, the divisibility of the line passed over, and then to reconcile with experience the idea (contrary to experience and full of absurdities) of a movement that is a length, that is of a movement placed upon its trajectory and arbitrarily decomposable like it. <sup>31</sup>

... How, with what is made, can we reconstitute what is being made? ... <sup>32</sup>

... All is obscure, all is contradictory when we try, with states, to build up a transition ... <sup>33</sup>

It is significant that the position shared by the four thinkers from whom we have quoted entails dissatisfaction not only with solutions of Zeno's paradoxes which are based on the dense Cantorean continuum of actual points and instants but also with Aristotle's solution. For by allowing the infinite divisibility of time intervals, <sup>34</sup> Aristotle does not insure the

<sup>28</sup> *Ibid.*, p. 195; cf. Bergson, *Creative Evolution*, *op. cit.*, p. 336.

<sup>29</sup> Bergson, *Matière et Mémoire*, *op. cit.*, pp. 196-197.

<sup>30</sup> Bergson, *Creative Evolution*, *op. cit.*, pp. 334-335.

<sup>31</sup> *Ibid.*, p. 338, n. 1.

<sup>32</sup> *Ibid.*, p. 339.

<sup>33</sup> *Ibid.*, p. 340.

<sup>34</sup> See Aristotle, *Physics*, 263<sup>a</sup> ff.

consecutivity of becoming which these philosophers deem requisite to the avoidance of Zeno's "Dichotomy" paradox.

We shall now proceed to offer criticisms of the arguments by Bergson, Weiss, Whitehead, and James which we have quoted. In doing so, we shall first consider points of difference between ourselves and these philosophers, taken severally, and then discuss the basic issue concerning "becoming" on which James, Whitehead, and Weiss jointly differ from the position which we shall defend.

### 1. Bergson.

Classical physics had resolved bodies into point-particles and absolute time into instants. When the Michelson-Morley experiment showed that in any inertial system, distances which are equal in the metric based on light propagation are equal also in the metric which is based on rigid measuring-rods,<sup>35</sup> then it became clear that a successful account of physical processes could be given by postulating point-instant-particles, i.e., *events* rather than things to be the basic entities of nature. All spatial and temporal determinations were now held to have as their ultimate objective the determination of relations between events. These were understood to be occurrences like the incidence of a light beam at a point, collisions of atoms, and collisions of a photon with an electron (Compton experiment). Clearly, these events are not sensed and their properties differ fundamentally from such perceived "events" as the sensed coincidence of thunder and lightning. An excellent and concise statement of the difference between these two types of events is given by H. Reichenbach in his *Axiomatik der relativistischen Raum-Zeit-Lehre*, where he writes:

*Subjective Koinzidenz* liegt z. B. vor, wenn der Astronom die Koinzidenz der Stellung eines Sternes im Fernrohr mit dem Schlag einer Uhr beobachtet. Es handelt sich hier um ein psychisches Phänomen, da die Verschmelzung der beiden Ereignisse zur Koinzidenz erst im Bewusstsein des Beobachters stattfindet. Streng genommen, hat also diese "subjektive Koinzidenz" gar keinen definierten Ort.

<sup>35</sup> This is the empirical content of the Michelson-Morley experiment. It was *not* proven by this experiment, as we are often told, that light has the same velocity in all Galilean frames, since the experiment involves only a single such frame.

Die Analyse dieses Phänomens gehört in die philosophische Theorie der Wahrnehmung; die Physik nimmt die Möglichkeit dieser psychischen Funktion als Tatsache hin.

Daneben gibt es noch *objektive Koinzidenzen*, in denen unabhängig vom Beobachter zwei physikalische Ereignisse zusammenreffen; das Bewusstsein übernimmt dann nur die Konstatierung dieses Punktereignisses. Beispiele sind die Koinzidenz eines Zeigers mit einem Skalenteil, ...

Beide Methoden, die Beobachtung subjektiver und objektiver Koinzidenzen, werden in der Physik benutzt; aber es besteht ein grosser Unterschied zwischen ihnen. Bei der zweiten wird die Koinzidenz nur *erschlossen*, nicht *wahrgenommen*. ...

Dies ist deshalb ausserordentlich wichtig, weil die Berechtigung der Relativitätstheorie zur Verwendung der Koinzidenz als elementarer Tatsache gewöhnlich damit begründet wird, dass alle Beobachtung letzten Endes auf Koinzidenzen zurückginge. Die Koinzidenzen, welche die relativistische Raum-Zeitlehre zugrunde legt, sind aber gerade objektiver Natur, also nicht jenes unmittelbare Koinzidenzerlebnis selbst, wie es in der subjektiven Koinzidenz vorliegt, ...<sup>36</sup>

It follows that when the theory of relativity employs Cantor's theory to say that the motion of a body in public space-time is a continuum of events, Einstein's theory is not making an assertion about any entities in the domain of the "données immédiates de la conscience" to which Bergson devoted his attention. There can therefore be no question here, or in any other case in which the purport of a scientific explanation is properly understood, of "explaining away" with the aid of what Bergson calls "les artifices de l'esprit" the attributes possessed by the deliverances of sense. The scientific theory of events involves no denial of the fact that in the perception of a fast transfer of our hand from left to right, for instance, we sense the hand to be *moving* rather than merely as being in different places at different instants. This sensed fact constitutes no embarrassment to the theory, since physiology compatibly relates the relevant physical events to the psychic ones without obliterating the distinctive features of either.<sup>37</sup> Thus,

<sup>36</sup> H. Reichenbach, *Axiomatik der relativistischen Raum-Zeit-Lehre* (Braunschweig, 1924), pp. 12-13; henceforth this work will be designated by "Ax. Rel."

<sup>37</sup> For a brief outline of the psycho-physiological theory in question, see Russell, *Our Knowledge of the External World*, (London, 1914), pp. 145-146.

the theory of relativity is not being false to the fact that a sufficiently rapid movement is sensed to occur *legatissimo* rather than *staccatissimo*, as musicians would say. In calling attention to the latter phenomenological property of movements and to their internal cohesiveness, Bergson was no doubt in the right. However, from this insight he drew inferences concerning the logic of the scientific description of physical motion which are profoundly in error and which result from a fundamental misunderstanding of the nature of mathematical theory. We shall *not* offer any of the objections which Russell raised against Bergson in his critique of that philosopher's treatment of motion.<sup>38</sup> Our rejection of Bergson's reasoning rests on the following objections:

a) In holding that a linear physical movement consists of a Cantorean continuum of events each of which simply occurs and none of which "moves," scientific theory does *not* identify the occurrence of the events with the path of the movement. The movement is held to be a set of events, ordered by the relation "later than" and not only by the relation "to the right of." The latter suffices to order the point set constituting the path traversed by the motion. To affirm an identity of abstract ordinal structure by claiming that both the set of points and the set of events are ordinally a continuum is *not*, as we shall see, to ignore the crucial physical differences which exist between the relation "later than" and the relation "to the right of." No mathematical isomorphism can ever preclude physical differences between objects whose structures it relates. Thus a continuum of points can constitute a path while a continuum of events can define an "arrow" for time and can thus be "un progrès" rather than what Bergson conceives to be "une chose." In fact, we shall show that scientific theory even regards an arrow at rest relative to the observer as a set of events which can be used to define a temporal order. In this sense, even the static arrow can be said to constitute a "progrès" rather than a thing.

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<sup>38</sup> For Russell's objections, see Russell, "The Philosophy of Bergson," *The Monist*, XXII (1912), esp. 337-341.

b) Bergson's claim that "mathematics, . . . , deals and can deal only with lengths" is untenable. The continuum is an abstract type of order which *historically* was developed principally on the basis of geometrical considerations but which logically can be asserted to be the structure relating diverse types of entities without any reference at all to geometrical magnitude. From a logical point of view, it is just as much a question whether we can resolve spatial magnitude into a continuum of elements as whether time intervals can be so resolved. These questions could not be raised independently of one another, if Bergson's conception of mathematics were correct, i.e., if all resolutions into a continuum of elements proceeded via a prior assimilation of the intervals so resolved to the structure attributed to space.

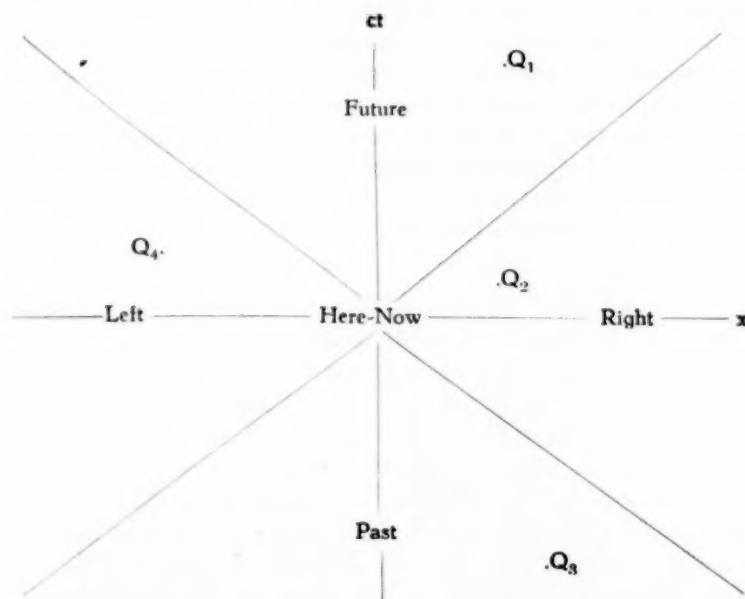
## 2. Weiss.

Weiss rightly emphasizes that in so far as time is viewed merely as an abstract type of serial order, it cannot be distinguished from other embodiments of its abstract ordinal properties. Instead of noting, however, that the distinguishing properties of the time of physical events are derivable precisely from the *physical* meaning of the relation "later than," Weiss claims that an essential distinguishing property of the time series is its division into three mutually exclusive classes: a present instant and the two stretches of past and future. This division is no doubt an important one for psychological time in which memory and self-consciousness play such important roles. We shall argue, however, that (1) the causal order of physical events defines a temporal order with an "arrow" to which this division is either inapplicable or irrelevant, and (2) it is merely an empirical fact that the determinations in consciousness of earlier-later relations between sensed events concord with the temporal ordering of their physical correlates as determined by a procedure independent of consciousness. The first of these contentions of ours can be justified in a *preliminary way* by reference to the Minkowski diagram <sup>39</sup> of

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<sup>39</sup>For this diagram see L. Page and N. I. Adams, *Electrodynamics* (New York, 1940), p. 100.

special relativity, for this diagram will enable us to see that Weiss is mistaken in writing: "It is admitted on all sides, I take it, that it [time] embraces an extended series of moments, each of which falls into one of the three exclusive and exhaustive classes of future, present or past, eventually becoming present if it is future and past if it is present."<sup>40</sup>



The following important facts should be noted in connection with this diagram:

The designation "Here-Now" does *not* indicate, except upon a mistaken interpretation, that the theory of relativity makes essential reference to "the present" as a temporal category of events. Just as we can arbitrarily choose an origin of coordinate axes, so we can make use of the Minkowski diagram at 12 noon on September 1, 1950 to let "Here-Now" designate a certain event occurring after the extinction of the sun. In fact, the diagram makes no allowance at all for an absolute present

<sup>40</sup> Weiss, *op. cit.*, p. 219.



though providing for events which are absolutely earlier than Here-Now, i.e., earlier for *all* observers, and for events which are absolutely later than the event denoted by "Here-Now." This means that there are no events which will be simultaneous with the "Here-Now" event for all observers and thus *there is no collection of events or state of the world which could be significantly termed "the Present."* It is therefore an error to suppose that there is a "present" which provides an absolute *existential* classification of all events in the sense that when any given event occurs, every other event must belong to exactly one of the following three classes: (1) events which have occurred or passed out of being, (2) events which are occurring or in being, (3) events which are yet to occur or to come into being. Any theory of *becoming* which implicitly or explicitly assumes such a division runs counter to the well-established hypothesis that no signal (influence) can be transmitted so as to arrive at its destination earlier than a light signal emitted simultaneously at the same place. This state of affairs is expressed in the diagram by the fact that the broken lines divide all events into *four*, rather than three, classes with respect to the origin Here-Now such that the class of spatially distinct events absolutely simultaneous with the event Here-Now is empty. Thus  $Q_1$  occurs later than Here-Now for all reference frames, but there are frames for which it occurs to the right of, at the same place as, or to the left of O. Event  $Q_2$ , on the other hand, occurs to the right of O for all observers, but a reference system can be found for which  $Q_2$  occurs earlier than, simultaneously with, or later than O. Similarly  $Q_3$  is absolutely past and  $Q_4$  absolutely left with respect to O.

It follows that for every given event, there is a class of events which cannot be influenced by it (even via the fastest signal), another class which cannot influence it, and a third by which it could have been influenced. Furthermore, for every pair of events A and B, it is determined whether A can influence B, B can influence A, or neither can influence the other. Consequently, if we wish to divide events into *three* classes such that the first class contains all events for which there are others

which it can influence, the second all events for which there are others which it cannot influence, the third all events for which there are others by which it could have been influenced, then we find that the same event can belong to all three classes and that these classes are not at all "transiently divided into three exclusive classes." Consequently, the relation of influencing provides no basis for what Weiss regards as one of the distinguishing properties of the time series. Yet it is precisely this relation which we must use to establish a temporal order among events, if we are not to avail ourselves of a psychological criterion by (1) making a conscious choice of a specific Here-Now as a unique perspective and (2) defining earlier-later relations between physical events on the basis of introspective determinations of temporal relations between their sensed correlates. Weiss' doctrine of the transient present agrees with a relativistic theory of time grounded on the influence relation that for any given event, there are some in relation to which it is past and others in relation to which it is future. In addition, however, his doctrine involves the claim that a future event *becomes* present and that a present event *becomes* past. There is no such becoming or transiency in the theory of relativity. The Here-Now division is a division from the perspective of a single event, but it is not a transient one in Weiss' sense. To make it transient, we would have to introduce a conscious organism, which chooses various Here-Nows as perspectives and which calls each Here-Now chosen "the present." *It is in this reference to consciousness that the key must be sought to James', Whitehead's and Weiss' insistence on the consecutivity of becoming, [for conscious choices can only be made consecutively, since each act of thought takes a positive finite amount of time.]*<sup>41</sup> No evidence other than that derived from the realm of consciousness has been adduced by these authors for the consecutivity of becoming. Since the influence relation is not transient in Weiss' sense, the temporal order which this relation defines among events involves no

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<sup>41</sup> This time requirement for acts of thought is reported as a result of investigations in physiological psychology by Enriques: *Problems of Science* (Chicago, 1914), p. 15, and mentioned by L. Chwistek: *The Limits of Science* (New York, 1948), p. 194.

reference to the transient present and to three mutually exclusive classes transiently defined by it or, as we shall see, to consecutive becoming. The construction of a temporal order on the basis of the relation of causal influence will be given below.

### 3. *Whitehead.*

Whitehead says, as we saw, that his "conclusions are required by the consideration of Zeno's arguments, in connection with the presumption that an actual entity is an act of experience." Reichenbach has shown us, however, that the actual entities or events on which the theory of relativity is based are *not* sensed and are not *acts*. Whitehead's reference to acts reveals clearly that directly experienced events are intended by him, and it is known that he wishes to reduce all physical entities to such events by explicit definition, since he sees no other way in which science can be grounded on observation. We shall show in a later issue of this *Review* that statements about points can be grounded on observation even if we reject Whitehead's point of view. Since the events postulated by the theory of relativity have the same *formal* properties as points, we could show by analogous considerations that a theory of relativity in which Reichenbach's "objective" coincidences are the primitive entities can be based on observation but that the properties of its events would differ fundamentally from those of Whitehead's actual entities. In any case, it is clear that the theory of relativity of Einstein is not grounded on Whitehead's actual entities, and this fact will turn out to be the source of the invulnerability of the system of events of Einstein's theory to the Zenonian objections raised by Whitehead.

### 4. *James.*

Apart from the issue regarding pulsational becoming, there are two points of criticism having special application to James:

a) I shall show elsewhere that James was mistaken, when he wrote: "If however, we take time and space as concepts, not as perceptual data, we don't well see how they can have this atomistic constitution. For if the drops or atoms are themselves without duration or extension it is inconceivable that by

adding any number of them together times or spaces should accrue." <sup>42</sup>

b) James offers a gratuitous refutation of the actual infinite, which he terms the "standing infinite," on the basis of the contention that "there is no 'all' to the numbers." <sup>43</sup>

### III

#### THE THEORY OF RELATIVITY AND THE DOCTRINE OF THE ATOMICITY OF BECOMING

We now come to the *nervus probandi* in the issue of whether the theory of relativity can avoid Whitehead's Zenonian "Dichotomy" problem while affirming that physical events occur so as to constitute a linear Cantorean continuum, i.e., a dense set. If the theory of relativity can do so, then the ground is cut from under the pulsational theory of James, Whitehead and Weiss as a theory of physical becoming.

In presenting the relativistic theory of time,<sup>44</sup> we shall largely follow the magnificent and unique treatment given by H. Reichenbach in his *Philosophie der Raum-Zeit-Lehre* and in his *Axiomatik der relativistischen Raum-Zeit-Lehre*. We shall confine ourselves to a connected presentation of such portions of that theory as bear immediately on our problem.

Due to certain limitations governing physical signals, the simultaneity of spatially separated events, i.e., the assignment of the same numbers to these events, involves a coordinating definition. Length measurements are carried out by noting coincidences which are simultaneous. Upon agreeing to use the same coordinating definition of simultaneity, however, two different Galilean observers obtain different metrical results for the spatial and temporal separation of events. Thus it

<sup>42</sup> James, *Some Problems of Philosophy*, op. cit., p. 155; see also supra, p. 146, n. 9.

<sup>43</sup> *Ibid.*, p. 167.

<sup>44</sup> For an historical account of mathematical theories of time, see G. Windred, "The History of Mathematical Time," *Isis*, XIX (1933), 121-153, and XX (1933-1934), 192-219.

comes about that two events can have a space-like separation for one Galilean observer while having a time-like separation for another, i.e., two events can be simultaneous but spatially separate for one observer but occur successively at the same place for another. This fact is embodied in the Minkowski diagram shown above and, no doubt, was in Minkowski's mind when he declared in 1908: "Henceforth, space by itself and time by itself are doomed to fade away to mere shadows, and only a kind of unity of the two will preserve an independent reality."<sup>45</sup> This statement has been widely misinterpreted to mean that the relativity theory provides no basis for distinguishing the spatial and temporal orders of events or for attaching a significance to such notions as the "arrow" of time. We shall now see that this theory, far from doing the latter, first clearly exhibits time as a system of order of *causally* connected events. Causally connected sets of events will be shown to possess a one-dimensional ordinal structure which unambiguously determines which of two such events is *later than* the other. Metrical coordinating definitions can then be given for the unit of time and the equality of two successive time intervals at a given observer as well as for the equality of time intervals elapsing at spatially separated observers. We are primarily concerned with the ordinal problem, since the issue raised by Whitehead is an essentially ordinal one.

Our first problem is to establish a temporal order among events taking place at a *given object or observer*, i.e., at the same point. In speaking of an observer, we are making reference to physical instruments and not to any minds.

We recall from our discussion of the events which are the concern of the theory of relativity that Reichenbach gives arguments showing why it is a mistake to identify the coincidences of Einstein's theory with sensed coincidences. It is therefore natural for him to require that the topological relations among his "objective" events be expressed in terms of the properties of such events and not in terms of the properties

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<sup>45</sup> Reichenbach, *Philosophie der Raum-Zeit-Lehre*, (Berlin, 1928), pp. 186-187. This work will hence be referred to by "PRZL."

of sensed events.<sup>46</sup> In particular, Reichenbach applies this argument to the problem of temporally ordering events, which take place *at the same observer* and says:

Handelt es sich um zwei genügend getrennte Ereignisse, so wird der Beobachter ein unmittelbares Gefühl für die Zeitordnung haben, das ihn in absoluter Weise zwingt; er *erlebt* die Zeitfolge in sich, und basiert hierauf die Ordnung der Ereignisse. Aber wir wollen von dem Gefühl des Beobachters . . . nirgends Gebrauch machen; wir werden später sogar finden, dass wir aus prinzipiellen Gründen das subjektive Zeitfolgeerlebnis doch nicht für die Ordnung der äusseren Ereignisse verwerten können. Wir müssen deshalb ein anderes Kriterium angeben.<sup>47</sup>

The reasons which Reichenbach gives later in this work<sup>48</sup> for not wishing to utilize our "inner sense" to establish temporal sequence are the same as the ones we quoted earlier from his *Axiomatik*, and he again concludes: "Man kann deshalb die Topologie von Raum und Zeit keineswegs auf subjektive Gründe, die aus der Natur des Beobachters entspringen, zurückführen."<sup>49</sup>

I agree with Reichenbach, but I do wish to emphasize that he has omitted one very important reason which would strongly support his argument. It is a reason of which we are made aware by the Zenonian argumentation of James, Whitehead and Weiss, and it is the following: If we attempt to use our "inner sense" for the determination of a temporal order among physical events occurring (very close to) where we are, we shall never be able to say that these events constitute a linear Cantorean continuum without getting into precisely the difficulty to which James, Whitehead and Weiss have called our attention. To avoid this difficulty, these philosophers developed the pulsational theory of becoming. The assertion that the *actual* events at the observer do constitute a linear Cantorean continuum, however, is made by the theory of relativity for a number of very important reasons, and therefore

<sup>46</sup> Since the temporal order among events will turn out to be one-dimensional and since dimensionality is a topological invariant, the relations of order in which we are now interested are topological relations.

<sup>47</sup> Reichenbach, *PRZL*, p. 161.

<sup>48</sup> *Ibid.*, pp. 327-328.

<sup>49</sup> *Ibid.*, p. 328.



constitutes one of the fundamental *synthetic* propositions in Reichenbach's axiomatization, as we shall see. It follows that unless the theory of relativity contains an absurdity, the events of which it makes assertions cannot be sensed.

In the writer's view, it is the meaning of the *experienced* "later than" relation which is the source of the incompatibility between Whitehead's becoming and a linear continuum of events. It seems an undeniable fact of the writer's experience that he is unable to decide which of two sensed events is later than the other by merely making imaginative reference to the events themselves. What is required is "getting" from one of the events to the other by "moving" consecutively through the intervening discernibly distinct events. It is precisely in this experiential context that when asking "how" a certain event "came" about or "became," we unavoidably expect as an answer an enumeration of *consecutive* intervening actual sensed events. Our expectation that every answer to questions concerning sensible change will be enumerative in this sense seems to be deeply rooted in our experience and in our mental habits. It is precisely because Russell failed to show that there are reasons why this expectation of ours should *not* be fulfilled by the events and time of physics that there has been a history of dissatisfaction with his mathematically sound Cantorean solution of Zeno's paradoxes in *Our Knowledge of the External World*. Even Aristotelian solutions have not escaped criticism springing from the craving for enumeration. For despite their allowing a set of densely ordered points only *potentially*, it is objected that the moving body must then traverse an actually dense set, if it is to be able to come to rest at any one of the points of division.<sup>50</sup> Thus Ross writes concerning Aristotle's solution of Zeno's Dichotomy:

... It surely cannot be maintained that a moving particle actualizes a point of space by coming to rest at it. It can come to rest only at a point that is there to be rested at. And when it does not rest

<sup>50</sup> Cf. H. R. King, "Aristotle and the Paradoxes of Zeno," *Journal of Philosophy*, XLVI (1949), p. 659, n. 4, *passim*, and Ushenko, "Zeno's Paradoxes," *Mind*, LV, No. 218 (April, 1946), p. 159, *passim*; Courant and Robbins, *What is Mathematics?* (New York, 1941), pp. 305-306; and Boyer, *The Concepts of the Calculus* (New York, 1949), *passim*.

but moves continuously, the pre-existence of the points on its course is equally pre-supposed by its passage through them...<sup>51</sup>

It follows that if the attempt is made to ground the theory of relativity in general and the "later than" relation in particular on a sensationist epistemology like Whitehead's, the pulsational theory of time is unavoidable.

E. A. Milne, L. Page, and A. d'Abro each derives the temporal order of events at the observer from his conscious intuition and yet insists that the events in question somehow form a linear Cantorean continuum. Milne writes:

... time ... seems to me to be on a totally different footing from space. The passage of time is an undeniable constituent of our consciousness. Of two events which happen to me, I can always say which occurs first, or whether they occur 'at the same time.' ... the idealized observer with which I identify myself is supposed to be able to carry out this judgment of assessing the "earlier-or-later" relation between two events which occur to him. ... The simplest ... observation is the reading of a 'clock' at the moment the event occurs. This is in principle simply the assigning of a number sequence or number-continuum to events which occur in the observer's own experience. The assigning of such a one-dimensional number continuum is possible just because of the above-mentioned immediate experience of a 'before and after' relation or a 'simultaneity' relation between events which occur to the observer himself. We rely on the immediacy of judgment of the time sequence. Near the limit of simultaneity our judgment may fail or may be ambiguous. There, the treatment here to be adopted breaks down.<sup>52</sup>

In *Kinematic Relativity*, which is a sequel to the work from which we just quoted, Milne attempts to amend the breakdown of his theory in the region beneath the threshold of consciousness. He proposes the following:

... Consider a single observer, an ego. He is conscious of something he calls the 'passage of time.' The phrase is to be taken as a unit. He is not conscious of something he calls time, and then aware of its passing. ... Let it suffice here to say that if actual events are deemed to possess a 'duration,' we can define point-events as the beginning and ending of such durations, after the manner of Whitehead.

*Definition of an arbitrary clock.* We shall further conceive it possible for the observer to interpolate, between any two non-

<sup>51</sup> W. D. Ross, *Aristotle's Physics* (Oxford, 1936), pp. 74-75.

<sup>52</sup> E. A. Milne, *Relativity, Gravitation and World Structure* (Oxford, 1935), pp. 14-15.

simultaneous events  $E_1$  and  $E_2$  occurring in his own consciousness, any number of further point-events; if  $E_2$  is later than  $E_1$ , we can say that all the interpolated events are later than  $E_1$  and earlier than  $E_2$ , and that they have the same 'before' and 'after' relations between one another as any actual pair of point-events have. We are thus led to the notion of a one-dimensional continuum of events at the observer. Choosing one of these events and labelling it zero, we can correlate all later events with the positive real numbers, and all earlier events with the negative real numbers, in such a way that the numbers  $t_1$  and  $t_2$  correlated with events  $E_1$  and  $E_2$  at the observer satisfy the relation  $t_2 > t_1$  if  $E_2$  is later than  $E_1$ .<sup>53</sup>

This proposal is entirely unworkable. For if it is granted that in order to determine *upon the occurrence* of a sensed event that it is later than another, we must "get" to the later event from the earlier by "moving" psychically through consecutive intervening events, then Milne's interpolation of more than a finite number of events between two given events  $E$  and  $E'$  destroys the very conditions which must be satisfied in order to assert meaningfully that  $E'$  is after  $E$  and that the intervening events are *between* them. On the basis of an intuitive meaning of "later than" the observer cannot even in theory continuously assign real numbers to events *as they occur*. Such an assignment would render unintelligible to the observer the meaning of the becoming of events, and become they must in the consecutive manner described by James, if an intuitively intelligible and determinable relation of later occurrence is to exist between the original events  $E'$  and  $E$ . The ever-recurring emphasis by Kantians and modern intuitionists on the temporal basis of the successor relation, which orders the discrete sequence of natural numbers, contains the basic truth that the very meaning of sensed becoming or occurring-later presupposes (i.e., entails) "nextness" (constructibility).<sup>54</sup> If the "later than" relation is defined intuitively, it is clear that no dense temporal order of events can be created by an ordering relation whose very meaning involves "nextness" and hence

<sup>53</sup> E. A. Milne, *Kinematic Relativity* (Oxford, 1948), p. 15.

<sup>54</sup> Thus Fraenkel writes: "Das Material zu den Konstruktionen scheint für Brouwer in den natürlichen Zahlen und, enge damit zusammenhängend, im Begriff der zeitlichen Aufeinanderfolge (...) zu bestehen" (*Einleitung in die Mengenlehre*, (New York, 1946), p. 228).

excludes denseness. To attempt the construction of a mathematically continuous temporal order on the basis of the intuitive "later than" is to equate the meaning of the "less than" relation for naturals with the corresponding relation for the reals.

The Zenonian "Dichotomy" problem which besets Milne also vitiates the foundations of Page's and d'Abro's conceptions of the "later than" relation. Like Milne, Page wishes to equip the local observer with a means for temporally ordering light signals whose transmission is to be continuous in the Cantorean sense. To do so, however, Page relies on the local observer's intuition as Milne had done, for he says: "Each observer is supposed to possess a temporal intuition."<sup>55</sup> Reasoning in an essentially similar manner, A. d'Abro writes:

When we consider the four-dimensional space-time continuum, where space and time are on the same footing, there is nothing to suggest either a flowing of time or a privileged direction for this flow. In order to conform the theory to the facts of experience, it is therefore necessary to postulate that our consciousness rises along the world-line of our body through space-time, discovering the events on its course.<sup>56</sup>

D'Abro's statement enables us to state our objections to his view in his own terms: it is inconceivable for our consciousness to "rise" along the linear Cantorean continuum of events on the world line. Such "rising" could never permit the discovery of a densely ordered set of events, each psychologically later than its predecessors.

The basis for a coordinating definition of "later than" which makes no use of conscious intuition was provided by Leibniz, who wrote: "If of two elements which are not simultaneous one comprehends the cause of the other, then the former is considered as *preceding*, the latter as *succeeding*."<sup>57</sup> For a

<sup>55</sup> Page and Adams, *op. cit.*, p. 79.

<sup>56</sup> A. d'Abro, *The Evolution of Scientific Thought from Newton to Einstein* (New York, 1950), p. 206. For a treatment sharing the essential features of the Milne, Page and d'Abro approach, see A. A. Robb, *The Absolute Relations of Time and Space* (Cambridge, 1921). For general discussions of philosophical problems involving time, see M. F. Cleugh, *Time* (London, 1937); J. A. Gunn, *The Problem of Time* (London, 1929).

<sup>57</sup> G. Leibniz, "Initia rerum mathematicarum metaphysica," *Math. Schriften*, VII, 18.

certain kind of event to be the cause of another, instances of the first must have an influence upon instances of the second. This broad definition also relates partial causes and partial effects. Nevertheless, it can be consistently used as the definition of "later than" within the context of a precise and comprehensive theory of causality, based on the *states* of physical systems, of the kind offered by Margenau.<sup>58</sup> Reichenbach makes use of Leibniz' definition without mentioning Leibniz and writes: "Ist  $E_2$  die Wirkung von  $E_1$ , so heisst  $E_2$  später als  $E_1$ . Dies ist die topologische Zuordnungsdefinition der Zeitfolge."<sup>59</sup> If  $E_2$  occurs later than  $E_1$  then it is analytic that  $E_1$  occurs earlier than  $E_2$ . It is an error to suppose that this definition is circular on the grounds that of two causally connected events, we apply the name "effect" to the one which we know to occur later. This charge of circularity arises from the false supposition that causality is merely a relation of connection between two kinds of events but that it does not define an order. To demonstrate the falsity of this supposition, i.e., to show that causality is an asymmetrical relation, definable by actual physical events, we note that when  $E_1$  is the cause of  $E_2$ , small variations in  $E_1$  (such as the addition of a marking event  $e$  to  $E_1$ , e.g., the attenuation or polarization of a light pulse) will be connected with correspondingly small variations in  $E_2$ , but *not* conversely. To show that the concept of temporal order is not implicitly assumed to begin with, we denote an event  $E$  that is slightly varied (marked) by  $E^\delta$  and then find that we observe only the combinations

$$E_1E_2 \quad E_1^\delta E_2^\delta \quad E_1E_2^\delta$$

but *never* the combination

$$E_1^\delta E_2.$$

In the observed combinations, the events  $E_1$  and  $E_2$  play an asymmetric role and thereby define an order. These observed combinations would, of course, define the same order even if we interchanged the subscripts in the symbols which name the events involved. The event whose name does not have a

<sup>58</sup> See H. Margenau, *The Nature of Physical Reality* (New York, 1950), chap. XIX, esp. the very useful table on p. 413.

<sup>59</sup> Reichenbach, *PRZL*, p. 161.

" $\delta$ " in the non-occurring combination is called the effect and the *later* event.<sup>60</sup>

Although this definition defines "later than," it does not suffice to equip time with an arrow. For suppose all phenomena were reversible like dynamical ones, e.g., the swing of a pendulum. How would we then distinguish the event of the passage of the pendulum bob vertically under the point of suspension of the pendulum from another such passage? The criterion which we have given would enable us to do so only by introducing a variation, i.e., by making reversible phenomena irreversible. In a world which already has irreversible processes, these would generally remain irreversible upon the introduction of variations. Consequently, if we wish to have a criterion for the arrow of time not involving an alteration in the world's "complexion," a provision going beyond our causal criterion for "later than" will have to be made below after we complete defining a temporal order for all the events at a given observer P.

Several additional synthetic assertions are needed to construct a temporal order for all the events at a given observer. We can state these synthetic propositions as follows:<sup>61</sup>

1. No two causally connected events ever coincide.
2. For any two events at P, we can describe a physically possible causal chain by which they can be connected, i.e., for any two events A and B at P, either A is later than B or B is later than A (connexity).

The transitivity (and asymmetry) of the later-than relation is now deducible.

Since we have founded the "later than" relation on the relation of causal influence, construed variationally with Reichenbach, *it now becomes entirely intelligible that influence relations can exist between events in a network of dependence such that the events constitute a linear Cantorean continuum with respect to the relation "later-than"!* In this way, the concept of "later-than" becomes the key to the temporal order without

<sup>60</sup> Reichenbach, *PRZL*, p. 162.

<sup>61</sup> Reichenbach presents this material in different form in *Ax. Rel.*, pp. 22-23. We have adapted it to our present purposes.



involving the nextness property. Accordingly, the third synthetic proposition now asserted is:

3. The events at P form a linear (Cantorean) continuum with respect to "later than."<sup>62</sup>

It is therefore possible to establish a one-one correspondence between the real numbers and the events at P, ordered by the relation of "later than" as here defined. This result could not be intelligibly achieved on a sensationist base like Milne's. Whitehead's static arrow is a set of causally connected events at a given observer and therefore satisfies the third proposition just enunciated. Therefore, *we have shown exactly how Whitehead's static arrow can survive the lapse of time, although we have rejected the pulsational theory.*

So far, we have only established an order, having the two directions of "later than" and "earlier than," but we have not safeguarded the preferredness of the direction of later than against the possible hazards of reversibility. On the level of the conscious experience of the flow of time, few facts are more striking than the existence of an "arrow" of time in the sense of the preferred status of the "later than" direction. Says James:

... Time keeps budding into new moments, every one of which presents a content which in its individuality never was before and will never be again. Of no concrete bit of experience was an exact duplicate ever framed.<sup>63</sup>

Such facts of memory as the infection of new experiences with the flavor of the old strongly contribute to the presence of the arrow in psychological time.

Since we are not using psychological facts as a basis for the temporal order of physical events but are claiming that the concordance of introspective and objective physical determinations of temporal sequence is merely an empirical fact, we must define the arrow of the observer's physical time without reference to the parallel arrow which he senses. Such an arrow will be a feature of physical time, only if there are irreversible physical processes which define it. If we interpret present

<sup>62</sup> This is Axiom I, 3 in Reichenbach, *Ax. Rel.*, p. 23.

<sup>63</sup> James, *Some Problems of Philosophy*, op. cit., p. 148.

thermodynamical evidence as indicating the existence of such processes, then we can equip P's time with an arrow.<sup>64</sup>

In his treatment of time's arrow, Margenau distinguishes between irreversibility and one-wayness of time.<sup>65</sup> The latter means that if  $x$  and  $t$  are respectively the space and time coordinates, a particle cannot satisfy the conditions

$$t_3 = t_1, \quad t_2 \neq t_1, \quad x_1 < x_2 < x_3,$$

although it can, of course satisfy the conditions

$$x_3 = x_1, \quad x_2 \neq x_1, \quad t_1 < t_2 < t_3.$$

We have not discussed what Margenau calls one-wayness, i.e., the fact that a particle cannot be in two different places simultaneously, since this fact involves a consideration of the relations between the determinations made by two separate observers. In order to show how Whitehead's static arrow can survive the lapse of time, we have had to consider only the topological properties of time at a single observer.

We have seen that the essence of our observer's physical time is given by the "later than" relation and that the latter does *not* involve nextness. Therefore, if Whitehead's static arrow is resolved into a set of physical events at the observer, there is no question as to how it survives the lapse of time. The relations between these events are then such that it becomes irrelevant if not meaningless to insist as James does that a *consecutive* series of acts or "operations" is needed to bring the events into existence and thereby to insure that "being should immediately and by finite quantities add itself to being"

<sup>64</sup> This is not to say that there may not be other than thermodynamic processes in nature which could be irreversible and could thereby serve as the required standard here. Reichenbach himself has doubts about the adequacy of thermodynamics for this purpose. See *PRZL*, p. 164. In this connection, see also A. O'Rahilly, *Electromagnetics* (London, 1938), chap. XIV, esp. pp. 680 ff; Eddington, *The Nature of the Physical World* (New York, 1928), pp. 68, 74, and *Space, Time and Gravitation* (Cambridge, 1920), p. 13; P. W. Bridgman, *Science*, LXXV (1932), 423; H. Spencer Jones, *Science Progress*, XXX (1936), 533; Weyl, *Philosophy of Mathematics and Natural Science* (Princeton, 1949), pp. 203-204; and Reichenbach, *Ex. Rel.*, p. 22.

<sup>65</sup> H. Margenau, *The Nature of Physical Reality* (New York, 1950), pp. 160-161.

(supra, n. 10). If James objected and argued that he still does not see "how" on our theory the causal influence is transmitted from a given event to the others, then two things would have to be said in reply: (1) This formulation of the question begs the question at issue if an explanation in terms of consecutive transmission is expected. For if given this kind of explanation, James would presumably cease asking "how." (2) If the question is not to be begged but if James is still dissatisfied with our answer, then, as Hume has shown to his everlasting credit with his illustration of the two billiard balls, we can reply to James by asking even in the case of consecutive transmission "how" the motion is transmitted from one billiard ball to the next. For this latter question is on a par logically with the question of how an influence is communicated from an event to another via a continuum of intervening ones!

Against Whitehead, we must urge that it is false to say concerning the actual events postulated by the theory of relativity, as he does, that "what becomes has duration" (supra, p. 13) Whitehead subscribes to the pulsational theory of becoming, but in order to reconstruct science, he endeavors to construct a linear Cantorean continuum of events *a tergo*, as it were, by applying extensive abstraction retrospectively once the sensed events have already "become." We cannot regard such an attempt as successful, since it is open to objections quite analogous to the ones which we shall offer in a later issue of this journal against the method of extensive abstraction. In fact, Whitehead merely asserts without proof that "the serial order among moments of the same time-system has the Cantor-Dedekind kind of continuity". (See *The Principles of Natural Knowledge* (Cambridge, 1919) p. 115). Although the events postulated by the theory of relativity are without duration, a continuum\* of them does have positive duration, and as we shall show elsewhere we can give a physical process as a coordinating definition for a "continuous set of instants." Therefore, we are able to say that Whitehead is in error, when he writes concerning the issue of becoming during a second of time: "The difficulty is not evaded by assuming that something becomes at each non-extensive instant of time. For at the beginning of the second of time there is no next

instant at which something can become" (supra, n. 18). On the theory which we have offered, no next instant is required for becoming, and processes of finite durations can be resolved consistently into non-extensive events. In the case of the intuitively felt becoming of Whitehead's sensationist epistemology, we do "enter upon the second" of time during which events occur. On our theory, however, it is irrelevant to wish with Whitehead to "point out what creature becomes as we enter upon the second in question" (supra, n. 19). Change consists, in the sense of the theory of aggregates, of certain point events and their relations. If these events take place, then change does. If the set of events is dense, then there is no *first* (non-degenerate) subinterval in the continuum of events which occur at the observer. Therefore, there is then no *initial change*. Our analysis has shown that the theory has no valid reason to make provision for such initial change. Discussion below of those aggregates of events which we call "motion" will show that there are good reasons for excluding the concept of initial change from the theory. Events simply are or occur (irreversibly in some cases) but they do not "advance" into a pre-existing frame called 'time.' Reichenbach puts the matter clearly by saying: "Die Zeit ist der Ordnungstypus der Kausalreihen."<sup>66</sup> Thus time is a system of relations between events, and as the events are, so are their relations. An event does not move and neither do any of its relations.

We have shown the relations between physical events to be such that it becomes impossible to envision the continuity of the existence of the physical world with Weiss as the inception of an instant (or state) "where another ends." There is thus no need to join Weiss in (1) fearing that "the world would disappear at the end of every instant and every change" and that a single instant (event) would pass into non-being, "leaving nothing in its wake," and (2) invoking nextness of becoming to preclude such annihilation. The latter would seem to be unintelligible, for the existence of "nothing" is not an event of *any* kind and a non-existent world is an utterly vacuous notion. It would therefore seem that it is entirely superfluous to concern

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<sup>66</sup> Reichenbach, *Ax. Rel.*, p. 12.

ourselves with conditions which preclude the eventuation of nothingness. By excluding the nextness requirement, the relativistic theory of events obviates the need for such discussions regarding becoming as derive from the quest for satisfying this requirement. For example, Maimonides' and Thomas' arguments for the existence of God from the contingency of being and the supposed need for "sustaining the world in being" must be evaluated in the light of this result as must the principle *ex nihilo nihil fit*. Causality is a relation between actual events, but there is no "causation" of events in the sense of "consecutive bringing into being."

#### IV

#### KANT AND NEXTNESS

Our analysis lends itself to immediate application to Kant's first mathematical antinomy.<sup>67</sup>

Two comments must be made concerning the well-known argument which Kant offers to deduce his first antinomy:

##### 1. A regression like

$$\dots, -3, -2, -1, 0.$$

has no first term though having a last and is a discrete sequence of ordinal type  $\omega$ . If the events of nature possessed this time structure, then for every event in a causal chain, there would be an earlier one immediately preceding it. Forward counting

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<sup>67</sup> Kant, *Critique of Pure Reason*, Bk. II, chap. II. See also: Cantor, *Gesammelte Abhandlungen mathematischen und philosophischen Inhalts* (Berlin, 1932), pp. 375, 377; R. Salinger, "Kants Antinomien und Zenons Beweise gegen die Bewegung," *Archiv für Geschichte der Philosophie*, XIX (1906), pp. 99-122; Russell, *Principles of Mathematics*, (New York, 1903), pp. 458-461, and *Our Knowledge of the External World*, (London, 1914), pp. 159 ff; E. Cassirer, "Kant und die moderne Mathematik," *Kantstudien*, XII (1907), pp. 1-49; C. D. Broad, "Kant's Theory of Mathematical and Philosophical Reasoning," *Proc. Arist. Soc.*, XLII (1941-1942), 1-24; L. Couturat, "La Philosophie des Mathématiques de Kant," *Rev. Mét. et de Mor.*, XII (1904), 377-9; Wundt, "Kant's kosmologische Antinomien und das Problem der Unendlichkeit," *Philos. Studien*, II (1885), 495; James, *Some Problems of Philosophy*, *op. cit.*, pp. 159-165 and 168, n.

would be impossible here, since there is no first term in the sequence with which to begin. Kant wishes to count, however, and therefore he considers this regression and claims that it cannot have a last term because all infinite series are potential progressions, and progressions have no last terms. Kant's desire to count apparently led him to suppose that all infinite series must be of the ordinal type  $\omega$  of a progression, and he invokes this conception in the proof of both the thesis and the anti-thesis.

2. From the point of view of the Cantorean theory of the continuum as applied to actual events, Kant's argument becomes untenable, even if we disregard his fallacious argument which is in effect that a regression cannot be a regression, because it must be ordinally isomorphic with the set of all (positive and negative), integers, if it is to be a regression and infinite at the same time. For if we hold, as the theory of relativity does, that for any given event, there have been a continuum of others earlier than it, then the equivalence of any small positive interval of the number axis with the set of all real points makes for the fact that two different cases are allowed by the claim of the theory of relativity: (1) a *metrically* infinite time interval could have elapsed before the event in question, and thus an infinite number of *equal positive* time intervals could have elapsed, or (2) a *finite* time interval has elapsed though this has involved the elapsing of a super-denumerable infinity of instants. Therefore, although we would wish Kant to affirm that a super-denumerably infinite set of instants has elapsed prior to a given instant, he would then nevertheless not be able to draw any inference with regard to whether the age of the world is finite or infinite.

## V

### REMARKS ON ARISTOTLE

In the light of the fact that such Aristotelians as Whitehead and Weiss had reason to be critical of Aristotle's theory of becoming, since that theory is not a pulsational theory while being sensationist, it is surprising to find the following recent



statement, made by H. R. King in his "Aristotle and the Paradoxes of Zeno," where he writes:

... Aristotle did not think that there was any paradox in the conception of time as infinitely divisible, or in the fact that there was no initial change, because he had not fallen under the spell of materialism. He did not mistake the potential for the actual, or the temporal and spatial dimensions of matter, of that which has become, for the paths of time, or of rest and motion. He did not, as did Democritus and modern science, mistake  $\dot{\iota}\lambda\eta$  for that present, creative fact of Nature which has within itself  $\acute{\eta} \acute{\alpha}\rho\chi\eta\ \kappa\iota\nu\eta\sigma\epsilon\omega\varsigma\ \kappa\alpha\iota\ \sigma\tau\acute{\alpha}\sigma\epsilon\omega\varsigma$ .<sup>68</sup>

If King is to be believed, Aristotle was just as much in a position to solve the problem of becoming posed by James and Whitehead *without* a pulsational theory as is a theory based on the actual infinity of events of the theory of relativity. The latter, incidentally, is essentially based on the Democritean epistemology which King condemns. King does not show convincingly in what way relativistic conceptions of events enable us to solve the problem of how Whitehead's arrow survives the lapse of time. He merely says that we should not conceive of time in terms of absolute space and refers to Ushenko's alleged "relativity solution" of the race paradox.<sup>69</sup> Unfortunately, Ushenko's solution is of no help, since Ushenko attempts to prove, by using a geometrical *diagram*, that Achilles must catch up with the tortoise on the grounds that his world line is not geometrically parallel to that of the tortoise and must therefore intersect the latter's world line.

Apart from not showing how the system of events postulated by the theory of relativity solves the problem posed by James and Whitehead, King uses a metaphor to straddle the gap between Aristotle's *potential* infinity of points and the dense infinity of events of Einstein's theory. This metaphor is also intended by him to accomplish for him the complex mathematical task of showing how a line can be an aggregate of points. He writes:

Though Aristotle's notion of infinite divisibility of a magnitude or time corresponds to what modern mathematicians mean by "com-

<sup>68</sup> King, *op. cit.*, p. 670.

<sup>69</sup> See A. Ushenko, *The Philosophy of Relativity* (London, 1937), pp. 175-176; Ushenko, "Zeno's Paradoxes," *op. cit.*, p. 160; and King, *op. cit.*, p. 669.

pact continuity," he hesitated to say that the continuous was *divisible* into points or instants, because by "division into" Aristotle meant "into parts," and only lines are "parts" of lines, and durations "parts" of time. Points, for Aristotle, are *bounds* of lines, and instants *bounds* of time. But in the compact continuous series, by multiplying the bounds to infinity, we imagine that they have, so to speak, "eaten up" that which is bound.<sup>70</sup>

In addition to using the metaphor "eat up," King fails to make clear how he conceives that a sensationist epistemology like Aristotle's in which the definition of continuity is grounded on such perceptual concepts as "touching" <sup>71</sup> can allow a dense set of points to be its criterion of continuity as well.

It is generally said that Aristotle rejected the actual infinite.<sup>72</sup> Edel shows <sup>73</sup> that one of Aristotle's reasons for rejecting the actual infinite was that, like Zeno, he was unable to see how a line could be composed of points or a time interval composed of instants.<sup>74</sup> By showing how the latter is possible (see *supra*, n. 9), we deprive Aristotle of one of his arguments for his conception of motion and of time. To furnish the required proof, however, we have to reject his sense-perception epistemology. Since modern science employs a Cantorean theory to account for observable facts, a philosopher who is as enamored of these facts as Aristotle was might well wish to abandon the Aristotelian epistemology.

## VI

### ZENO'S PARADOXES OF MOTION

The continuum is a type of order. The denseness property, which is at issue in the case of the becoming of a continuum of events like motion, is likewise an ordinal property. The metric need not concern us here, for it can be shown without considering the metric that the physical "later than" relation

<sup>70</sup> King, *op. cit.*, p. 659, n. 5.

<sup>71</sup> See Aristotle, *Physics*, 226<sup>b</sup>-227<sup>a</sup>.

<sup>72</sup> See Edel, *Aristotle's Theory of The Infinite* (New York, 1934), pp. 14, 18, 19, 29-30, 48-49, 76-78.

<sup>73</sup> *Ibid.*, pp. 48-49, 76-78.

<sup>74</sup> See Aristotle, *On Generation and Corruption*, Book I, Chap. II, 316<sup>a</sup>15-317<sup>a</sup>17.

which orders spatially separated events has the same logical basis as the corresponding relation between events at a given observer and that nextness is alike excluded in both cases. This is, of course, what we expected, since the theory claims that the ordinal relations between causally connectible events are not a function of the observer.

It remains to show how the analysis which we presented contributes to the solution of Zeno's paradoxes of motion.<sup>75</sup>

a) *The "Dichotomy."* In terms of the theory of events which we have presented, the runner is a set of causally connected events of a very special kind. Entities which remain self-identical like the runner have world-lines which are parallel to those of other actual causal chains, i.e., they are time-like world lines. We are not here concerned with *all* the distinguishing properties of sets of events which constitute persistent objects or persons but only with those properties which enable us to say that the motion of the runner is a continuum of events on a time-like world line, since they are actually causally connected.<sup>76</sup> It is now clear that such a continuum of events can occur and that *the causal basis for their occurrence is also the basis for their temporal order*. Once this is granted, a number of important consequences follow and we need only show that these consequences contain no absurdities. In evaluating these consequences, we must remember that the events with which we are dealing are ordered by a "later than" relation which does *not* involve the nextness property. Requirements based on the expectation of the presence of that property must therefore not be introduced surreptitiously in carrying out this evaluation.

What is true in the 'Dichotomy' argument as applied to the theory of events is that the dense ordering of the events entails the absence of a first subinterval among the continuum

<sup>75</sup> Historical questions regarding these paradoxes are entirely beyond the purview of this investigation. The version of the paradoxes which we have chosen is based solely on its systematic interest.

<sup>76</sup> On the problem of physical self-identity, see K. Lewin, *Der Begriff der Genese* (Berlin, 1922); Reichenbach, *PRZL*, pp. 309-310; and H. von Helmholtz, *Einleitung zu den Vorlesungen über Theoretische Physik* (Leipzig, 1903), p. 38.

of events which elapse. On the basis of our causal theory of temporal order, the requirement that there be such a first subinterval becomes entirely gratuitous. There is a first event in the motion process but no first motion, no first time interval and no first space interval. Clearly, if a continuum of events can occur before the runner reaches his destination, then these same events can occur regardless of how we divide them into subsets or subintervals. Cantor has shown that any collection of non-overlapping intervals on a line is at most denumerably infinite.<sup>77</sup> Therefore, we can divide the metricized continuum of events in various ways so as to get a finite number of non-overlapping subintervals or  $\aleph_0$  such subintervals. One instance of the latter is the regression  $\dots, \frac{a}{2^3}, \frac{a}{2^2}, \frac{a}{2}$ , which is considered

in the Dichotomy and which Zeno (presumably) used in the attempt to demonstrate that motion cannot even begin. Zeno was entirely successful in showing that there is no first motion but it does not follow that there is no motion, as he thought. On this division, there is no first subinterval and there is no more reason why there should be than there is a reason for the existence of a first rational fraction greater than 0.

The various Cantorean solutions of Zeno's paradoxes with which this writer is familiar, including Russell's, have all inveighed against the use of sensuous intuition in the analysis of physical motion.<sup>78</sup> However, none of the writers involved have shown how physical processes can intelligibly be part of a temporal order, if the nextness condition entailed by the intuitive meaning of such an order is not satisfied and if we are called upon to abandon this intuitive meaning without being offered anything in its stead except the assertion that there is nonetheless a somehow temporal order with respect to "later than." The writer believes that the analysis here presented first establishes the validity of Russell's well-known claim that the

<sup>77</sup> Cantor, *op. cit.*, p. VEC. An analogous theorem holds for three-dimensional space. Therefore, we know that the number of elementary particles in the universe is *at most* denumerable.

<sup>78</sup> See, for example, C. B. Boyer, *The Concepts of the Calculus* (New York, 1949), pp. 25, 295, *passim*.

Weierstrassian static theory of the variable is relevant and adequate to the description of motion and of temporal change.<sup>79</sup> Without the justification given in this paper, Weierstrass' theory of such functions of a real variable as  $x = f(t)$  is a theory of pure mathematics having no claim to relevance to the description of motion and of change. *Since individual events do not move*, but are nevertheless ordered non-consecutively by "later than," it is the theory of events as here interpreted which justifies Russell's writing: "Weierstrass, by strictly banishing all infinitesimals, has at last shown that we live in an unchanging world, and that the arrow, at every moment of its flight, is truly at rest."<sup>80</sup>

Again by Cantor's theorem (*supra*, n. 77) we can subdivide the metricized continuum of events so as to divide the spatial or temporal interval which it defines into the progression of subintervals  $\frac{a}{2}, \frac{a}{2^2}, \frac{a}{2^3}, \dots$ <sup>81</sup> Here there is a last event but

no last subinterval, and often the Dichotomy paradox is stated with reference to this progression of subintervals rather than as involving the regression of diminishing subintervals given above. No cogent reason can be given why this set of subintervals or any other set resulting from using a division ratio  $\frac{1}{n}$  other than  $\frac{1}{2}$  should have a last subinterval,

and we shall see that the absence of such a last *subinterval* does *not* prevent the last *event* in the series from eventuating as is often thought. For if each of a continuum of events, having a first and a last event, occurs, then every event in every subinterval thereof occurs, but it is misleading to say that every subinterval occurs *as such* since *the subinterval is not an event but a temporally ordered set of these*. Puzzlement immediately arises, for the assertion of this misleading state-

<sup>79</sup> See Russell, *The Principles of Mathematics*, *op. cit.*, pp. 347, 348, 350, 351, and 473.

<sup>80</sup> *Ibid.*, p. 347.

<sup>81</sup> We have used the symbol "a" to denote either interval and will continue to do so. The ambiguity of this usage is intended in this particular context, since it emphasizes the structural identity of the two intervals as a consequence of the structure of the events shown by a segment of a world line.

ment results in (1) the structural identification of the pseudo-occurrence of such a subinterval of events with the occurrence of a conscious act, and (2) the question of how it can be held that *all* of a progression of subintervals of events — now implicitly identified with conscious acts — can have occurred consecutively, when the last event occurs. The questioner is invoking the experiential fact that no mathematical progression of mental acts can occur in a finite time. *His premise that a subinterval of a continuum of causally connected events can be likened to a mental act with respect to occurrence is, however, a radically false one.* For we know that two actually causally connected events can not be simultaneous for any observer and therefore cannot be said to occur together. Consequently, no subinterval of the continuum of causally connected events constituting the motion can be regarded as "an occurrence" in the sense in which a mental act is an occurrence at what is psychologically a given moment of time! Neither can the questioner create a difficulty for us by arguing that if we consider the *bona fide* occurrences of the individual events which divide one subinterval from the next instead of considering the subintervals themselves, then we obtain an incomplete progression of such individual events. For by Zeno's own standards as well as by the technical results of contemporary measure theory, the time required for the occurrence of *that* discrete denumerable sequence of events is zero and therefore the existence of that sequence can hardly preclude the eventuation of the terminal event in the series.

The refutation which we have given enables us to comment on Weyl's remarks regarding the runner. Weyl writes:

... The remark that the successive partial sums

$$1 - \frac{1}{2^n} \quad (n = 1, 2, 3, \dots) \text{ of the series}$$

$$\frac{1}{2} + \frac{1}{2^2} + \frac{1}{2^3} + \dots$$

do not increase beyond all bounds but converge to 1, by which one nowadays thinks to dispose of the paradox, is certainly relevant and elucidating. Yet, if the segment of length 1 really consists of infinitely many subsegments of lengths  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{8}$ , ..., as of 'chopped-off' wholes, then it is incompatible with the character of the infinite as the 'incomplete' that Achilles should have been able to traverse them



all. If one admits this possibility, then there is no reason why a machine should not be capable of completing an infinite sequence of distinct acts of decision within a finite amount of time; say, by supplying the first result after  $\frac{1}{2}$  minute, the second after another  $\frac{1}{4}$  minute, the third  $\frac{1}{8}$  minute later than the second, etc. In this way it would be possible, provided the receptive power of the brain would function similarly, to achieve a traversal of all natural numbers and thereby a sure yes-or-no decision regarding any existential question about natural numbers!<sup>82</sup>

His statement provokes the following comments:

1) The correctness of Weyl's point regarding the machine is based on the following result implicit in our preceding analysis: if the continuum of events constituting a given process is "chopped up" into subintervals in any physical sense rather than merely conceptually, then the physical continuity of the original set of events can no longer be maintained. The acts of decision of the machine would *not* combine into a continuum of events at all, and the events involved would not constitute a causal chain which is continuous in the mathematical sense.

2) In the absence of the explanation of how a set of temporally separated events can have the ordinal structure of the continuum, it is unavailing to adduce the arithmetical theory of limits as a reply to Zeno by pointing out that the successive

intervals  $\frac{a}{n}, \frac{a}{n^2}, \frac{a}{n^3}, \dots$  traversed by the runner give rise to a

converging sequence of partial sums and that the sum of a converging sequence of numbers is simply *defined* as the arithmetical limit of the sequence. The history of the discussions of Zeno's paradoxes has rightly reached an unfavorable verdict regarding the latter solution. However, this arithmetical theory can be shown to be the arithmetic expression of a result of the theory of events and thereby of a cogent refutation of Zeno in the following way: since we have shown that a continuum of events can take place and that such a set of events can have a temporally last event, which constitutes the reaching of the destination by the runner, we can say in a purely topological sense that the terminal event is the *limiting event* of the set of events. By the latter we mean that this event is one for

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<sup>82</sup> Weyl, *op. cit.*, p. 42.

which every interval of the set, however small, containing the limiting event, encloses an event of the set, distinct from the limiting event itself. If now we define a metric for this set of events by assigning numbers to each event in suitable fashion, then it is clear that the coordinates of the limiting event will be *arithmetic* limits of the coordinates of the terminal events of the successive subintervals traversed by the runner. Therefore the arithmetic theory of limits can significantly be used to express the fact that the runner reaches his destination.

3) The division of a continuum of events into a denumerable set of consecutive subintervals is artificial in the sense that it is conceptual and not physical. Instead of choosing successive subintervals each of which is  $\frac{1}{2}$  of its predecessor, we could, of course, have chosen subintervals whose ratios are smaller than  $\frac{1}{2}$ . We could go one step further and ask how many *distinct* subintervals of events there are in the continuum, if we allow over-lapping ones. The answer is that there is a continuum of distinct subintervals. The geometrical case makes this clear. For consider a fixed point  $x_A$  between 0 and 2, for instance. We can then choose a continuum of points  $x$  with which  $x_A$  can form an interval. There is, however, a continuum of points  $x_A$ . Since the product of the cardinal number  $c$  of the continuum with itself is still  $c$ , there is a continuum of distinct intervals and the runner can just as much be said to traverse these as he can be said to traverse the denumerable set of consecutive subintervals.

b) *The "Achilles."* The Achilles paradox is guilty of the same "chopping up" of the continuum of events which we found to be illegitimate or, at best, misleading in the consideration of the case of the runner in the Dichotomy. This becomes clear the moment we consider the motion from the point of view of the frame in which the tortoise is at rest.

Instead of carrying out this chopping up operation, we note that there is no difficulty in the conception of the continuum of events which constitutes the motion of Achilles, and similarly for the tortoise, considered separately. Furthermore, there is no reason whatsoever why these two continua of events

should not have one event in common. Inasmuch as we have established that physical events can constitute a continuum, we could also use Russell's argument and argue that (1) simultaneous positions of Achilles and of the tortoise can be put into one-one correspondence such that *all* the positions of Achilles' path are correlated with only those of his own positions which are also occupied by the tortoise at some time during the race,<sup>83</sup> and (2) Achilles and the tortoise can share a terminal position.

The solution of the Achilles offered by Ushenko is unsatisfactory despite Ushenko's correct attempt to consider the events of the theory of relativity in connection with the problem. Ushenko argues that the world lines of Achilles and of the tortoise are routes of events and that the geometry of the world lines is such that they intersect.<sup>84</sup> This argument suffers from a two-fold weakness: (1) After justifiably having found Russell's treatment of the runner unsatisfactory, Ushenko begs the question just as much as Russell by assuming that physical events can have the ordinal structure of the continuum, i.e., that he can represent them geometrically by a world line. The world line representation no more solves the problem raised by Whitehead, whom Ushenko believes to be following, than does the statement that the points constituting the runner's path are known to be a continuum. A graphic representation of a structure of objects cannot solve logical difficulties besetting the assumption that the objects represented possess the structure in question. By ignoring this fact, Ushenko fails to justify the assumption underlying the geometric representation of events. A proof which can in principle be given only with the aid of a diagram is certain to be a *non-sequitur* even when its conclusion is true. (2) Ushenko is dimly aware of a difficulty in his answer, but he misplaces the locus of the difficulty, when he claims that we must look outside the theory of relativity for a solution of it. He is led to the view that no provision is made in that theory for the unique properties of time on

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<sup>83</sup> Russell, *Principles of Mathematics*, *op. cit.*, pp. 350, 358.

<sup>84</sup> Ushenko, "Zeno's Paradoxes," *op. cit.*, pp. 160-1.

the basis of Minkowski's pictorial statement that "space in itself and time in itself dissolve into shadows," which he quotes.

c) *The "Arrow" and the "Stadium."* In the Arrow paradox, Zeno can be said to be raising a question analogous to the one he raised in his paradoxes of plurality. In the latter, he had asked how a set of points can have positive length, if its elements do not. In the Arrow, he asks how the occupation of an individual position does not. It will be shown in a forthcoming paper (see *supra*, n. 9) that the coordinality and the *structure* of the set provide the answer in the case of length and we can see that the answer in the case of events is similar: a set of events can constitute linear motion, if it is a continuous set with respect to the ordering relation "to the right of" (or "to the left of") and with respect to the relation "later than." Therefore, a *physical* movement is a "sum of imr obilities," although Bergson is right that this is not so for *sensed* movements. On this point we agree with Russell.<sup>85</sup>

A widely accepted interpretation of the Arrow paradox has it that this paradox applies to the assumption that a finite time interval consists of a finite number of consecutively successive instants. Since the theory we are defending does not make this supposition, we need not deal with the difficulties which the latter involves. For precisely the same reason, we shall not deal with any of the versions of the Stadium or Stade paradox.

## VII

### CONCLUSION

We saw that in response to the problem posed by Zeno in the Dichotomy Paradox, James, Whitehead and Weiss have urged that events must be held to occur in a *discrete* sequence. This pulsational theory of becoming presents a challenge to the theory of relativity, since the latter theory holds that the

<sup>85</sup> Russell, "The Philosophy of Bergson," *op. cit.*, pp. 340-341.

actual physical events of nature occur in the *dense* order given by Cantor's continuum. The pulsational theory likewise repudiates Russell's solution of Zeno's paradoxes which assumes that the spatio-temporal order of physical events is that of the mathematical continuum.

In addition to showing that the epistemological assumptions made by James, Whitehead, Weiss, and Bergson are at variance with those rightly made by the theory of relativity of Einstein, our analysis yielded the following results:

1. We accepted Leibniz' causal theory of temporal order as elaborated by Reichenbach and showed that the causal basis for the occurrence of physical events is likewise the basis for their temporal order. The writer believes that Reichenbach's causal theory is sound to the extent of being compatible with Margenau's comprehensive theory, which covers all the branches of physics. However, our argument that actual physical events occur continuously in Cantor's sense does *not* stand or fall with the soundness of Reichenbach's particular formulation of causality. The view here defended rests only on the claim rightly made by Reichenbach that (1) the events which the theory of relativity regards as the fundamental entities of physical nature are not sensed and do not possess the properties of sensed events, and (2) the temporal relatedness of these events cannot depend for its meaning on the properties of the "later than" relation given in sensuous intuition. So long as it is possible to define the "later than" relation between physical events in *some* way without recourse to the *intuitive* temporal relation of "later than" apprehended in sense awareness, our theory stands. For it is only the phenomenal "later than" relation of these awareness which is the basis for the insistence that the temporal order is *discrete* and that the nextness property is inextricably involved in the very meaning of temporal sequence.

2. It was shown on the basis of Reichenbach's causal, non-intuitive definition of the "later than" relation, which orders physical events, that a solution of Zeno's paradoxes of motion based on the mathematical theory of Cantor is fully justified. The lesson of the argumentation by James, Whitehead and

Weiss is that on an intuitively grounded meaning of temporal order, the nextness property can be sacrificed only on pain of logical contradiction.

We can now offer a reason for Russell's inability in *Our Knowledge of the External World* to provide a justification of his assumption that the temporal order of physical events is that of the Cantorean continuum: The program of logical construction which he endorses in that work involves epistemological commitments which preclude such a justification. Whitehead sees this fact and accepts the consequences of his sensationist epistemological commitments by developing a *pulsational* theory of becoming. While following Whitehead by enunciating his Maxim of Logical Construction, Russell gratuitously and falsely assumes that a Cantorean theory of becoming can be made intelligible and convincing on the basis of the *sensationist* assumptions of his program.

To the writer's knowledge, Russell's claim that the Weierstrassian static theory of the variable is relevant and adequate to the description of motion and of temporal change was first justified by the argument which we have given.

3. Such physicists as E. A. Milne and L. Page were criticized for holding that a meaning can be assigned to the temporal continuity of processes of transmission (e.g. of radiation) on the basis of the "later than" relation of immediate intuition.

4. We reject the pulsational theory of becoming advocated by James, Whitehead and Weiss, since the rejection of their epistemological assumptions and the adoption of those of Einstein's theory cuts the ground from under their theory.\*

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## TIME AND THE TIMELESS

Among the many ways in which the word "time" has been used, we may distinguish a wider and a narrower sense. In its narrower sense it may be taken to refer to passage: whether this passage be of a continuous whole — "ever-flowing time" — of moments within such a whole, or of entities which move in perpetual change. But if we consider time merely as such a passage we shall find that it is unable to explain itself. For the passage of time loses reality unless we interpret it in terms of the past-present-future series; and the analysis of this series shows that its components cannot be understood unless in describing their nature we make use of the conception of the timeless. The existence of this state of affairs has often been recognized, but because of it philosophers have been led to make a serious mistake: they have concluded from this fact that time was itself a mere appearance of the timeless. They have thus taken what was found to be necessary to the explanation of time as a sufficient explanation of it. But they were never able to explain satisfactorily to others the temporality of the appearance of the timeless. I shall on the other hand suggest that time in its widest and most ultimate sense must embrace within itself the timeless to which it has so often been referred. The eternal depends upon the fact of passage for its ability to enter into relations. And passage itself cannot be understood except as moving through the timeless.

Before I can urge this position, however, I must first dispose of alternative views which might be brought against it from the very start. Let us ask if a theory of Newtonian time or a time ontologically complete in itself renders passage comprehensible. The answer must be that it does not. If there is to be passage, something must pass; that at least is certain, but this something cannot be the moments which comprise an absolute time, a time which does not depend on anything outside itself for its reality. For the moments of an absolute time possess no quality which could differentiate one from another,

and consequently it must be nonsense to say that one is before, another after, or even that one is earlier, another later. As moments of an everlasting time all must possess exactly the same status. They are limitations of one entity which contains within itself no reason why one part of it should differ from another.

But on the other hand we may consider the moments of time not as limitations of one complete entity, but as a simple self-existent series. We shall then place our emphasis not on the continuous but on the successive character of time. Let us further suppose, in order to escape the difficulty which still remains from our first hypothesis, that of differentiating these successive moments, that each of them possesses a simple qualitative characteristic which is unique. Yet this hypothesis also will not enable us to account for temporal passage. For none of these moments as defined possesses any positive relation to any other. It will be said that the relation of succession unites them. Each is by itself, and then another succeeds it. But so far as the latter is concerned it does not exist, nor does the former exist for it. We say "then," and in so doing make a reference to time which goes beyond the moments we have postulated. The relation which we call "then" appears to be neither outside nor within the terms it connects; it hangs stranded in mid-air. Thus when we have made time into a matter of pure succession we find that we have lost it altogether. For nothing can pass save in relation to that which encroaches upon it; a pure succession is in reality nothing but a number of eternities.

Thus to explain time we must be able to show how there can be both continuity and succession at once. On the one hand the temporal presents us with a constant loss of the old and a gain of the new: that which before was not. Endings and beginnings are rooted in the very conception of time itself. On the other hand there is never a real break in the motion of time. Its flow is continuous and altogether, not in the mathematical sense of continuity, but in the deeper sense of duration with which Bergson has made us familiar. No before-after or

earlier-later series can reconcile these two meanings of time. Only in the conception of a present which never fails, yet within which one event is able to succeed another, can they be reconciled with each other. But there is no such present for simple qualities: the present which brings with it the past and the future can be understood only in relation to individuals in process. Only they can refer the past and the future to a never-failing present.

Temporal passage cannot be understood except as the passage of continuing entities — namely, individuals. Yet time itself cannot be reduced simply to the motion of these entities. We should then have gained continuity, only on another level to have lost it once more. For time would disintegrate into many overlapping times, not one. Past, present, and future are indeterminable save with reference to individuals; yet they also result from the character of time itself, and this character is a necessity which determines individuals although in its particularity it is determined by them. We are confronted with this paradox that although the present never fails, yet a new present is always being exchanged for an old. Furthermore, in order that there should be a past, present, and a future now there must previously have been a past, present, and a future, although what is past now was present then. The past-present-future series is thus in a general though not in a particular sense repetitive, and its repetitive character can never be found in any summation of its terms: for it is a habit or necessity inherent in the very nature of time itself. It follows that we are not in the consideration of the past-present-future series involved in a vicious regress as McTaggart would hold; <sup>1</sup> we are forced back, it is true, but we are forced back from a particular exemplification to the general property which makes this possible. It is for this reason that the inductive problem as applied to time is a false problem: no future is ever absolutely a new future, for in raising the question of the future we have already made reference to something old. The future in its

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<sup>1</sup> Cf. J. McT. E. McTaggart, *The Nature of Existence*, Vol. 2, Chapter 33, §331-§332.

generality is as old as time itself. Yet on the other hand this general property of time is by no means a complete *a priori*, for it could not exist or be realized apart from some sequence of particular determinations. It is given with its determinations.

But time is not merely a rule; it is a matrix as well. It is both form and matter. As a rule it governs succession, but successive times are also in a certain sense delimitations of a time which is a totality.<sup>2</sup> Beyond the successive appearances of time there must be an enduring and continuous basis for these appearances, which finds its correlate in the continuity of individuals, and which both determines them and is determined by them. Though this totality is not something which is actualized, it is none the less real. It is neither completed nor self-existent; yet it is one. We have already spoken of the paradox involved in the notion of the present, namely, that it appears to be both continuous and successive at once. By itself the past-present-future series taken as repetitive is only an abstraction from time as a whole. There is also the present which never fails. This present is continually being actualized; yet it as well as the present in the past-present-future series must have a ground in the potentiality of time as a whole. Its link with the past-present-future series is the sense or direction of time, and in considering this sense or direction we must go beyond the notion of repetition to the notion of time as one.

In the narrower sense, time like space is always being made, although there is this difference between the two that the making of time is not also its unmaking. Yet in a wider sense time cannot be conceived merely as that which is in the process of construction, for we cannot ignore the fact that that which makes time is itself both in time and subject to its conditions. Time then, like space, is both a result of the world of becoming and a determinant of that world. In this widest sense it partakes of the timeless. On the other hand, past,

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<sup>2</sup> Cf. Kant, *Critique of Pure Reason*, "Transcendental Aesthetic." However, the view developed here is, as will be evident, in many respects strongly at variance with that of Kant.

present, and future are not merely limitations of the matrix<sup>3</sup> of time; they are also achievements. That matrix alone would not have permitted of their prediction. There can be neither past nor future without a present to which that past and future relate, and no present is possible except for individuals in relation to one another.

Each individual is in its own right a linking of the past, the present, and the future into one. The two senses of the present which we have distinguished, in it are not divided. In its own motion it is an enduring present which nevertheless is subject to constant change. It is a living illustration of James' definition: "Past and future, for example, conceptually separated by the cut to which we give the name of present, and defined as being the opposite sides of that cut, are to some extent, however brief, co-present with each other throughout experience. The literally present moment is a purely verbal supposition, not a position; the only present ever realized concretely being the 'passing moment' in which the dying rearward of time and its dawning future forever mix their lights."<sup>4</sup>

But since there are many individuals which enter into the formation of time, there must be many such moving presents in the universe. Yet these presents are not unconnected. Each is indeed a present of presents, for each event in which individuals come together must constitute a common present for those individuals which it unites. Such events may be likened to "drops"<sup>5</sup> or specious presents. They constitute a certain level of the temporal but by themselves they are insufficient to explain it in its entirety. For by their nature they are bounded or quantified, and hence can give us only the pure succession, not the continuity of time. Once we have taken the fatal step of bounding the present as a whole we shall find that the con-

<sup>3</sup> For this term, I am indebted to S. Alexander; cf. his *Space, Time and Deity*, also "Space-Time" in the Aristotelian Society Proceedings, 1917-1918.

<sup>4</sup> "A Pluralistic Universe," p. 254.

<sup>5</sup> Cf. James, *op. cit.*, p. 231, for this expression. However, I do not agree with James that time can be completely explained in terms of such units. Also, it is essential to my view that the units should be shared presents.

tinuity of time has been shattered, never on this basis to be recovered. The present as a whole is on the contrary a sense of motion which goes beyond each and every bound. But such a sense of motion is to be found in individuals alone. Consequently the present of each individual must always be more than the sum of the common presents in which it participates. It moves through them, and as they end and become past, it gathers them up into itself at the same time that it releases itself from them. It is because of this double function that the individual is able to mediate between the continuous and the successive characters of time. The difficulty with which the present confronted us arose from the fact that it was observed both to end and to endure. In one sense it became past; in another it was never finished. This difficulty is solved when we realize that there is a present which transcends specific ending presents, although it is not divorced from them, and that this present is centered in individuals.

Thus the present is not a timeless present which would destroy the transition of becoming. Nor is it simply a period of duration bounded on one side by the past, on the other by the future. For past and future must rise again in such a period of duration or else it does not endure. The present is rather the transition from future to past. But this transition must be understood not as a knife-edge to which finite minds can only approximate, but in the widest sense possible, as a transition which carries both past and future with it. They are abstractions from it; they would be lost without such an act of transition. The present itself is always more than this abstracted future and past, for it is the new coming into being. If we analyze either past or future by themselves, we cannot find any such novelty. Any past taken by itself is an earlier-later series; any future is a nonentity. Yet if we try to find such a new coming into being by analysis of the present apart from the past and the future we cannot find it either. It can be found only in the whole process.

If each individual is itself such a moving present, in what sense may we speak of a present of the whole universe? Certainly not in the sense of a total motion which includes the



motion of subsidiary individuals, in the ordinary sense of inclusion. Nor may we think on the other hand of one present which is instantaneous or simultaneous throughout the entire universe. The universe cannot be limited in this manner; the present is immanent throughout it, but it neither contains nor stratifies it. Since each individual's present gathers together presents with other individuals, concrete time must ever and again be analyzed into many reciprocal presents of varying durations which are connected together by the individuals which enter into their formation. But these reciprocal presents are mediated into one motion by the continuous presents of the individuals involved in them. The motion of time as a whole may thus be compared to the growth of a spider-web, or perhaps we may say that it advances in an uneven manner like the ocean, now further in one sector, now further in another. Yet in order that we should be able to make such comparisons there must be some common matrix of time against which growth and process may be felt. This matrix is not, however, created time, even though it is necessary to it. Thus the conception of a single simultaneous present of the entire universe is an intellectual construction, a limit towards which we may approximate, but which actually is never reached. On the other hand, certain contemporary philosophers, notably Whitehead, influenced by relativity theory have gone to the opposite extreme. They have asserted that all simultaneous entities are causally independent of each other: <sup>6</sup> a doctrine which is the cosmological equivalent of solipsism. Yet nothing happens instantaneously; there must always be, as Whitehead himself earlier stated, a temporal spread.<sup>7</sup> The dogma that all simultaneous entities are causally independent of one another is as much an intellectual construction in one direction as the conception of a simultaneous causal state of the entire universe is in the other.

The present must be taken in the widest sense as that which cannot be divorced from the past or the future. In

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<sup>6</sup> Cf. *Process and Reality*, Part II, Chapter II, §1, also *Adventures of Ideas*, Part II, Ch. XII, §4.

<sup>7</sup> Notwithstanding the criticism of Whitehead in this paragraph, his views have very profoundly influenced this paper, especially perhaps, his doctrine of "objective immortality."

order to weigh this statement it is necessary to consider how in the light of it both past and future are to be interpreted. The future can no longer be merely a present which has not yet come in sight. Nor can the present contain the future in the simple manner in which a cause was once said to contain its effect. For the future is the possibility of a further present which is required if this present is to exist. We must not make the mistake of attempting to reduce the future to the status which it will have when it becomes present. The present that will be, will be a novelty and insofar, unpredictable.<sup>8</sup> The future as such has two aspects. It is, first, the relevance of this present for something new. This relevance is already immanent within the present, and more than that, spreading out of it. It is the impulsion or force, the *probability*, which carries individuals from one event to another. For there can be no question of validating epistemological probability until we see that ontological probability is grounded in the nature of things, that each of us day by day in living is carrying on an induction. The present is not only ready to burst but bursting with the impulsion of this induction. Secondly, as the past cannot be understood apart from the conception of *loss*, neither can the future be understood unless we see that it comprehends within itself a similar negative characteristic, but one which is also fundamentally different from that of the past: the characteristic of blankness (or what Santayana called the open mouth) of *not-yetness*. As Santayana says, the open mouth may close on nothing.<sup>9</sup> Though time has a repetitive character, this character is not realized for every individual in time. Yet the fact that the future may never become present cannot deprive it of that status which it possesses as a future now.

For this negative character is not the only character which the future possesses. If it were, Broad would be right when he denies the existence of a future altogether and declares that "the essence of a present event is, not that it precedes

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<sup>8</sup> Cf. G. H. Mead, *The Philosophy of the Present* and also Whitehead's *Process and Reality*, *passim*.

<sup>9</sup> *Scepticism and Animal Faith*, p. 36.

future events, but that there is quite literally *nothing* to which it has the relation of precedence."<sup>10</sup> The future like the past has both its transcendent and its immanent character; if the transcendent character is negative, the immanent character is positive. Together they constitute what we know as incompleteness.

Thus the question of how the future can become present is no more strange than the question of how the present can become past. The future has one arm in the present and its other is the very fact of what is not yet.<sup>11</sup> Time as actually cannot be separated from time as potentiality. If the potentiality is not already immanent within the process so that this present can be taken up into a new present, then when that new present occurs this old one will possess no relation to it. Forever they must remain in different worlds.

Let us now turn from the double nature of the future to the double nature of the past. If each individual is a moving present which carries its past with it, then on first thought we appear to be forced to abandon the traditional conception of the past as absolute, as that which is over and done with, which can no longer recur. Yet this is the deep metaphysical meaning which experience has forcibly led all of us to attach to the conception of the past. Any metaphysics which rejects this meaning of the past is forced to take refuge in statements about time whose nature is nothing short of trivial.

Certain pragmatists of our own period have inclined towards such a result. For Mead in particular, the past is always the past of a present, and therefore itself present.<sup>12</sup> What has passed beyond a recall is the past present, and not the present past. There is too much of significance in Mead's view of the present, and it has influenced this paper too deeply for us to reject it completely at this point. Yet most readers

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<sup>10</sup> C. D. Broad, *Scientific Thought*, p. 66.

<sup>11</sup> If the new were completely detached from the old, not only would there be no possibility of induction; there would be no possibility of memory either. Cf. Bergson, *Matter and Memory*, p. 177, where a metaphor is used concerning the present, which is similar to the one used above of the future.

<sup>12</sup> *Op. cit.*, especially pp. 28-31.

must feel that Mead has not been altogether successful in his exchange of the passed past for the present past. There is indeed much ambiguity in his treatment at this very point. Now this difficulty which even the sympathetic reader cannot help discerning conceals the very solution for which we are looking. There are in reality not one but two senses of the past, each of which complements the other. By its very nature the conception of the past is a double-barreled conception, a notion swung between two extremes. There are not two pasts, the present past and the passed present; rather, what we mean by past is precisely that which possesses these two facets. Our difficulties arise when we attempt to divorce them from each other. The past is that which is immanent within the present, and creative of it, as the pragmatists have said, but it can be creative in this sense, it can be the source of something new, just because in its own right it is over and done with. Although neither one of these characteristics is deducible from the other, nevertheless together they characterize one object: a past that is able to be both present and passed. The passed nature of the past must then be conceived as a limit or ballast to its activity in the present. Thus the past is both dead and alive at once, but we must remember that it is dead in itself and alive only for the individuals which use it.

Mead himself requires this further sense of the past in order to make his present past fully real. Without it the "present past" becomes merely a perspective within the present but in that case it contradicts itself. For by definition a perspective must always refer to something whose reality is not exhausted in that perspective. As the possessor of its past, then, each individual is in direct connection with a reality which nevertheless inevitably transcends it. It is for this reason that in confronting the past we feel more strongly than anything else a sense of loss, a realization that what has been can never come again, and not only that but that we can never hope to realize it fully as it was. Our only hope of keeping the past resides in its other property, in its creative role wherein we continually change it for something new, but in this exchange in some strange manner manage to keep it, in the only way it can ever be kept, by making it active.

Thus the past which is over and done with can never change any more, although as the present past it may change many times. In this unchanging character, the passed past is timeless. At this very point, where the passed past achieves the status of a limit, we find that the temporal connects with the timeless. The passage itself of time depends upon reference to a past and is not motion unless that past is real, and yet the past that is necessary in order that time should move, in one sense is timeless. It possesses the status of an eternal fact. While it is true that we witness constant accretions to this past, these accretions none the less receive at once a certain status: though they may be newcomers they are immediately as much passed as the farthest past that the mind can imagine.

In the present moment also, but in a different way, we sometimes seem to be "lifted out of time altogether." In the fullness of the present, as we are led to concentrate our entire beings upon its depths, negating for the moment the very possibility of a past or a future, we suddenly appear to become aware of a timeless reality. This it was which Santayana hypostatized into essence, but with his solipsism of the present moment no one can agree who has become aware that in such apprehensions of timelessness we are not limited to the solitary self. To see things *sub specie æternitatis*, is this an alternative to seeing them temporally, or is it but seeing another side of that which is?

We have already defined the present as the curve of transition between past and future, a curve which cannot be isolated from either of these. The present has been defined as a sense of motion, a dynamic and unfailing onthrust. Yet this very moving present is able to touch upon that which as given seems the complete antithesis of motion: a reality of some other order. The eternal appears to be of such a different nature from the passing that it should not even enter the same universe of discourse. Yet the timeless and the passing do enter the same experience. There is an antithesis here, but not a contradiction. If an attempt is made to think of the eternal in terms of passage as that which endures forever, then a contradiction indeed arises that the everlasting could ever be given in

terms of the passing. But to interpret the timeless in such terms is hopelessly to misunderstand its nature.

We have spoken of the present earlier as pure motion. But actually pure motion is never given. There is always an element of rest from which the moving present arises and to which it returns. A complete motion would so change itself that it could not even be called motion. Change must always refer to a background of that which does not change. This element makes possible any present, no matter how violently changing, but it is only at certain times that we are enabled to become aware of it. At such times, change still continues but our attention has been directed away from change to that which is its other side. Not only do we sometimes recapture this further attribute for ourselves; it may also be fixed for us in works of art or held momentarily within nature.

Those writers, then, who have identified the present with the timeless have in a certain sense been right, but they have taken that upon which the present touches, and called it the present itself. It is, on the contrary, an attribute which enters into the present to a greater or less extent, though not exclusively. It is this quality above all which appears to be lost when the present becomes the past, although it may be rediscovered in another present. And this is especially baffling, since the past has its own status of eternal fact. Yet this difficulty may not be so profound as it seems. The past which we speak of as an eternal fact is the past in its transcendent character, in the character which it had as present. Yet, rarely, this character returns to us in dreams, or in the incidents which Proust, for example, describes. It is not the past as complete, but the timeless quality that belonged to the past as a present, which we then regain. If time and the timeless are in some manner bound up together, then such recurrences may seem strange but they are no longer completely inexplicable. But neither a theory which rejects the reality of passage nor a theory which rejects the reality of the timeless can ever hope to account for them.

The moving present, we found, must be referred to individuals, and similarly, the timelessness with which we are now



concerned enters into that further dimension of the individual of which we have already spoken: the dimension in which it impinges upon the meaningful. Were it not so, such recurrences as those we have just mentioned would be impossible. It is in this further dimension that the individual brings its past, its present, and its future together, while in meetings with other entities these dimensions appear to have become separated from one another.<sup>13</sup> But although they may appear to be separated, in reality they are interconnected. Within our highly complicated experience it is possible to discern a series of gradual approximations towards a state of pure timelessness which has its position, as it were, at the base of time. Thus dream-time often appears to be hidden in an extremely compressed state within the bounds of waking time. Now it is the starting-point of the metaphysician to generalize from just such obscure experiential data. The individual must be in some direct communication with a timelessness of meaning which ordinarily it apprehends only vaguely.

The individual must itself then be grounded in the timeless or such phenomena cannot be made explicable. Yet the individual is also in its necessity for action a direct source of the becoming of concrete time. There is no difficulty in the reconciliation of these two functions when we realize that they are separations from an original whole. Furthermore, we must not conclude from what has been said that because timelessness appears to belong peculiarly to the solitary individual it therefore belongs only to it. *Because* the timelessness of meaning belongs to individuals in themselves it can be communicated. Because it is at the base of each individual it can and must penetrate shared presents. The timeless is like learning: to share it is not to lose it.

Three different sets of phenomena, then, unite to establish the fact that the temporal cannot be isolated from the timeless: the status of the past as a transcendent fact; the appearance of

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<sup>13</sup> As we speak of time sometimes as a fourth dimension in addition to the three dimensions of space, so one may speak of a further dimension of the timeless which is in a certain relation to the three temporal dimensions of past, present, and future. Cf. Plato, *Parmenides*, 156-157.

the eternal in the midst of the present; and the necessity for a timeless dimension of the individual within which it may experience trans-experiential meanings. I do not claim to have given a final account of the relation of these phenomena to one another, but I do believe that their significance is great, and that it can be preserved only in a metaphysics which is able to relate the temporal and the timeless into one significant whole.

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## ORIGIN AND REPETITION

"Repetition is the reality and  
significance of life."

(S. KIERKEGAARD).

### I

The problem of creation, though as old as humanity, is as mysterious as it was on the first day when man emerged. Modern science imagined it could solve it by denying it. It replaced creation by evolution and "explained" evolution through natural selection and the struggle for existence. Far be it from me to underrate Darwin's great merit of having made explicable a variety of phenomena under a new aspect. But when he says, "Unity of type is explained as unity of descent," he is involved in a vicious circle; for the unity of descent is based on the unity of the original type; and the question, how this, e.g., the original sheep *qua* sheep, arose, remains unanswered. In distinction from Darwin our problem is, how are we able to understand the origin of species as definite types?

Bergson, feeling that evolution alone is not sufficient, replaced it by *Creative Evolution*. He substituted the immanent creative force of nature for the transcendent creativity of God. He is completely justified in rejecting a mechanical, or a teleological, interpretation of nature. But notwithstanding the splendid fireworks of his mind and his profound influence on a whole generation of intellectuals in and outside France, he has failed to solve the problem of natural creation with the help of the *élan vital*. For this *élan* — conceived as a vital unit which is preserved from one generation of germs to the next through the medium of organisms — does not explain anything at all. The *élan vital*, like the old "vital power," is merely a transcription, or rather, a disguise of the riddle. With reference to Bergson, our problem is, to dissolve this *élan vital* into its elements and to elucidate at the same time

the specific characteristics of creativeness as implied in evolution.

Whitehead accepts Bergson's Creative Evolution, but makes it a characteristic of the created world. The creative world is the world of origination or activity. Distinguished from, and opposed to, it is the world of persistence or the world of ideas, which he interprets mostly as eternal objects, and sometimes as values. This duplication merely complicates the problem, without bringing it one step nearer its solution. It is impossible to explain Creation with the help of a two-worlds-theory. For this theory is based on the mistake of isolating, and treating as absolute, elements which are, in fact, merely relative. The Theory of Relativity has definitely established that the same body may be interpreted as being either in movement or in rest, according to the system of co-ordinates to which it is referred. If one artificially tears asunder such elements as movement and rest, or change and persistence, as Parmenides, Plato and his followers up to Whitehead do, one bars the way to the understanding of Creation. For the essential characteristic of it is precisely that the two elements are indissolubly connected in it. Therefore, in relation to Whitehead, our problem is to supersede the two-worlds-theory, and to demonstrate that the 'persistence' which Whitehead attributes to a second world is an indispensable feature of this *one* world.

Neither Plato's theory of the two worlds, nor Plotinus' theory of emanation solves the riddle. Emanation is merely a metaphor allowing of different interpretations. It is based on the image of water springing from its source. But a source does not create water, it simply issues it. In this interpretation of emanation every created being is already there beforehand and is, therefore, not created. If we substitute, however, the image of the light radiated by the sun, then the so-called emanation is a mere illumination of objects. This again is not creation but phantasmagoria.

Therefore neither emanation, nor evolution, nor creative evolution are sufficient for describing, let alone solving, the

problem. What is wanted in these circumstances is not an analysis of the creative act; for such an analysis could be based only on our own experience, and human productivity is merely second-degree creation, perhaps only a fortunate arrangement of given elements. We have to rely on created objects; in the first instance, on the products of Nature, in the second, on those of man. Such an analysis would be of importance for all those disciplines in which the notion of creation plays a role, namely theology, philosophy, biology, the human studies, art, and history. This enquiry could be called metaphysical, since it concerns pervading features of reality. But it should be clear that these features are not so much characteristics of reality as modes of interpretation, i.e. not such as might be perceived, but such as cannot be missed in any interpretation of reality, if it is really to be understood. This corresponds to my assumption that metaphysics is not, what it was since Aristotle, the science of being as being, but a science concerned with meaning, that is, an attempt at a comprehensive interpretation of our experience. — In this analysis terms are used which are not new as such. But the old concepts are, first, liberated from the one-sided and therefore limiting meaning in which they have been used so far; they are, secondly, more clearly separated from other concepts with which they were mixed up, and thirdly, freed from their artificial isolation, and replaced in their natural interrelationship. The progress of human thought consists, on the one hand, in the clearer distinction of meanings which were originally fused, and, on the other, in the elimination of a faulty isolation of elements which, in fact, belong together. It is not a solution of the problem of creation that is aimed at in this analysis. The finite understanding is unable to solve this problem, it cannot do more than clarify and elucidate it.

## II

To be as concrete as possible, the thesis which I should like to formulate, in distinction from Plato and Plotinus, Darwin, Bergson, and Whitehead, is the following: "Origin and

repetition are pervasive and correlative characteristics of the world as we know it." The two are interdependent and cannot be understood, except in their correlation.

"We speak of 'origin' only in those cases where something arises which may be repeated." This proposition must seem paradoxical to those who mistake a misinterpreted originality for creative activity, and who are inclined to assume that there only is origin where something comes into being which is not repeatable. Goethe already has derided these would-be originals, who, dreaming of originality and groping about in the dark half their lives, proud of not having followed any master, and of not being obliged except to their own genius: "these fools, as if that were possible at all." True originality proves its nature by the fact that, nurtured by repetition, it produces something which may be repeated. Fools, however, do not know that it is infinitely more difficult to create the repeatable than the non-repeatable. Also the converse is true, "Only that is true repetition which goes back to the origin."

These theses reveal their true import only if both these notions are clarified. First, origin has to be distinguished from "beginning." Beginning is the mere inception of an event in time. I begin to walk, to read, or to write. The plant begins to germinate after the seed has been sown. The history of a nation begins with the first document (monument or chronicle) which is preserved. Very often the beginning of nations is clouded in darkness. Chance may have destroyed older documents, and the beginnings we know of may have the flavour of the unessential and fortuitous. Origin and beginning have to be distinguished, because there are men, and even nations, which never reach their origin. They move in mere possibilities, are driven here and there by their inclinations and by foreign influences, and never arrive at a realisation which comprizes all the modes of their existence, and which is repeatable. But what is origin, as distinct from beginning? Origin is the appearance, or the coming into existence, of an element, of a function, act, or *Gestalt*, which did not exist before; or shortly, the arising of a new structure. This char-



acteristic distinguishes origin from beginning. In the beginning there may have been chaos. Where there is origin there is cosmos. That is the miracle in the origin of species, as in every origin. It is really a leap. Suddenly the structure is there.

I illustrate this distinction by the example of those nations which have an origin, and not merely, like all nations, a beginning. The totality of civilizations can, ideally, be ordered in a series, the one extreme of which is occupied by purely natural, as it were, plant-like formations, like most of the primitive and Indian civilizations; and the other represented by those which, artificially constructed, are predetermined by planning, and unfold in a rhythm like clock-work (planned civilizations). In between these extremes there are peoples of such strong constitution that they grow organically, but who at the same time are gifted with a strong will-power. These nations need a relatively long time before they find themselves. If, however, they reach a decision, they keep to it with an incredible tenacity and constantly return to it, when the vicissitudes of history tend to divert them from their decided course. Thus the people of the British isles were forced for centuries to suffer Roman, Saxon, Danish, and Norman invasions, until in the thirteenth century the English nation discovered itself, accepting a structure which provided the backbone of its history and to which it returned again and again. Macaulay saw this with unusual clarity. He says about the separation of England and Normandy in the thirteenth century: "Here commences the history of the English nation . . . Then it was, that the great English people was formed, that the national character began to exhibit those peculiarities which it has ever since retained, and that our fathers became emphatically islanders, islanders not merely in geographical position, but in their politics, their feelings and their manners. Then first appeared with distinctness that constitution which has ever since, through all changes, preserved its identity . . . Then it was that the House of Commons, the archetype of all the representative assemblies which now meet, either in the old or the new world, held its first sittings. Then it was that the common law rose to the dignity of

a science, and rapidly became a not unworthy rival of the imperial jurisprudence." Then, he adds, the English language and literature found their definite form. The Jews belong to the same class of nations which do not tumble from revolution to revolution, from constitution to constitution, but which follow a clear course in their development. After a rather prolonged dawn, in which the twelve tribes lived either as nomads or under the rule of Egyptians and Midianites, the Jewish people suddenly grasped its mission; and then emerged with its peculiar character, its specific law, state, society, and religion; a totality of forms which varied and changed, but which remained fundamentally the same throughout the centuries. This structure gives to Jewish history the same consistency and homogeneity which is characteristic of English history. This origin of the Jewish nation and of the Jewish mind is connected with the almost superhuman effort of Moses. He united the tribes into a nation, he gave it *Torah*, i.e. doctrine, law, and religion, and in doing so stamped that imprint on the Jewish nation and the Jewish mind which enabled them, in spite of all sufferings, persecutions and expulsions, to retain their identity and to return, again and again, to their origin.

It would be a misunderstanding to object that neither English history begins with the thirteenth century, nor Jewish history with Moses. Certainly they do not begin in these times, but they had their origin in them. It is not to be denied that this origin was prepared. Much of what suddenly became form was there before, and enough room is left for historical enquiry into this preparation. Not a single form in nature or history arises out of absolute Nothing. In so far as they arise at all out of nothing, this nothing is relative. All of them are prepared by previous happenings which enter as partial elements into the new integration. We know since Hughlings Jackson, von Monakow, Mourgue, and Freud, that biological and psychological functions are integrated out of previously given partial functions. Monakow formulated a law of the piecemeal disintegration of functions. This law says that circumscribed lesions of the brain do not destroy a function permanently, but split it up into those parts which during phylogenesis and

ontogenesis have been combined into a seemingly simple unit. The disintegration is not at all a mere reverse repetition of the integration.<sup>1</sup> It is highly probable that a similar law is valid in the realms of History and Mind, namely, *that no function, act, or idea is able to arise, except from preceding partial functions, part-acts and part-ideas, and that as a result of the disintegration of the total functions partial functions again appear, though not in the same succession as during their integration.*

In distinction from beginning, origin is the first appearance of a structure, and essentially, of a basic structure of a specific object or occurrence in nature or history. On this point nature and history are in agreement. Just as the indefinite variety of organic forms becomes manageable by being ordered through the structural laws of specific fundamental types; so the chaos of history is transformed into a cosmos, when numberless instincts, inclinations and volitions yield to decision, and the formless passions to the form-giving will. In history origin is connected with decision, and with choice between different possibilities, one definite possibility being realized. Elements which are compatible and able to co-exist are suddenly united in this solution. Origin is origin of form. But since it is the form of an organic being, this form is, at the same time, a static, spatial form (in the higher animals based on anatomical structure), kinetic time-form (order of the succession of organic processes), and form of functions and acts. It is important to see that space- and time-forms are structurally identical. An organism is a being which expands according to a structural law simultaneously in time and space. Since historical events always transcend the present, are directed towards the future, and imply intentions which are never realised quite as intended, origin is here at the same time origin of an intention. Both, the origin as a principle of structure and the origin of an intended aim, are here indissolubly connected.

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<sup>1</sup> Cf. my paper, "The Analysis of Experience." *The Philosophical Review*, 1941.

## III

Origin in isolation is insufficient for understanding Nature and History, and also for making History. Origin transcends itself by becoming the origin of the Repeatable. Here we are faced with an insight which is important for any sort of reconstruction, namely, that there is in history no origin without repetition, just as there is no repetition without preceding origin. Every new creation of the mind, every renaissance of a nation is only possible in the series of repetitions which connect this renaissance with the origin of this nation. This is the vital problem which makes our enquiry inescapable.

But what is repetition? Just as origin has to be distinguished from beginning, repetition must be differentiated from merely mechanical re-iteration as an extreme case. The mechanical re-iteration of the tick-tock of watches, of poetic metre, of time-measure, of poems learnt by heart, all this plays a role, but it is not what I have in mind. The Pythagorean periodical recurrence of the same elevates this mechanical re-iteration to metaphysical dignity, and by doing so reveals its absurdity. According to this theory the same persons and the same events re-appear in different periods of world evolution, a theory which enthralled Nietzsche and was accepted by him as a basis of an *Ersatz*-religion. This is the extreme, and therefore false, overstatement of a thought which contains a grain of truth. Persons and events do not re-appear exactly as they were, because they are functionally dependent on the historical constellation of their specific time. A recurrence of the same would only be possible in a completely determined, mechanical, macroscopic world, though even there it would be extremely improbable. It is completely meaningless in micro-physics where merely probability statements are possible and where it is impossible to describe the history of a specific atom

or electron. Not a recurrence of the same, but of the similar, and in specific cases of the partially identical, is what in fact happens.

But in rejecting mechanical re-iteration we need not fall into the other extreme, the "existential repetition" which Kierkegaard advocated in a superb manner in his important book, *On Repetition*. It was he, who first saw the importance of this category, grasped its existential meaning and illustrated it with amazing clarity by the example of Job. Far be it from me to translate his poetic-prophetic visions into dry prose or to subject them to a narrow criticism. But when we have drunk the precious wine of his words and when the Dionysian intoxication has evaporated, we cannot avoid the Apollonic insight, that Kierkegaard refers to repetition merely in its highest stage and that he identifies it with "becoming again oneself before God." That his hero becomes again himself; that after his entanglement in the world he regains himself; that the split in his personality is healed; that he again re-unites all his forces; or, on a higher plane, that Job, after having lost everything, after having passed through all possible sufferings and through all his tribulations now becomes himself again, blessed with double his former possessions; it is this which Kierkegaard calls repetition, "becoming again oneself before God." This is a personal category of great importance, and we may distinguish it as repetition proper from that improper form under which those people suffer who are tied to a former stage of their development and who, under compulsion, repeat actions of a previous stage of their development. But just as origin is not always origin of the Self, and just as the formation of structure and *Gestalt* precedes that of person and Self, so repetition is not, generally speaking, equivalent to "becoming again oneself before God." This is merely the ripest fruit of a more primitive event.

What then is repetition? *Identity in succession*, or rather, identity in succeeding (succession being either logical, mathematical or temporal). Every formation of a series presupposes, in fact, repetition. The formation of our series of numbers, e.g., is based on it; for, first, every succeeding integer arises from the preceding by the addition of one unit; second, the basic numbers, one to ten, re-appear in every decade; and, third, in the positional system 111.111 ... the value of any unit is diminished to one-tenth, every time it is moved one place to the right. Not only are the basic numbers as the formative elements of all numbers repeated here, but also the arithmetical operations.

We are here, however, not so much concerned with this aspect of the problem as with repetition as identity in succession, or rather, the identity of a structure in time. Under this aspect repetition forms the centre of the notion of substance; or rather, *substance should be understood as the identity of sequence in time*. The Persistent is essentially the structure of succession or a structural law determining this succession in its formal structure, not in its material details. Not that people were mistaken in speaking about substance, but they mistook it for something material and perceivable. The repetition of the same cannot refer to the same persons or situations, but merely to formal structures. It will remain true that an eternity will not bring back what we have missed in a second. Nevertheless there remains an identity in the structural sequence of constellations and of persons. This must not be misunderstood as if there were identical elements or structures entering into a likewise absolute space-time system; on the contrary, space-time and the elements filling them are interdependent. Moreover, repetition being a structurally identical sequence of comparable stages and therefore a means of establishing what



Whitehead calls Persistence, does in no way exclude variations, it implies them.

Not everything that comes into existence is repeatable. At every moment repeatable and non-repeatable elements are mixed. Only structures are really repeatable. The non-repeatable elements are the results of chance; they are non-essential, accidental. This is the reason why origin is the arrival of the Repeatable, and why repetition proper implies a return to the origin.

We cannot here review the different forms of repetition in inorganic and organic nature and in history. But it must be understood that every sphere of reality has a specific kind of repetition (just as it has a specific sort of origin, and a specific pattern in which origin and repetition are connected). Every oscillation or vibration is something more than a rapid motion to and fro, namely, a periodical transformation of potential energy into kinetic energy, and *vice versa*. Vibrations are rhythmic, isochronic repetitions of movements giving rise to the phenomena of light, heat, electricity, magnetism, etc. All regular motions show repetition. Indeed, the first so-called law of motion postulates repetition as the basis of movement. — Our solar system is likewise based on it. Our earth completes regularly in one year its journey around the sun, such that always after exactly the same span of time it is in the same position relative to the sun. If one calls a process rhythmical, in which different phenomena of equal duration repeat themselves in ordered succession after equal intervals in the same manner, the course of the earth is rhythmical, and all the children of the earth, plants, animals and men, partake in this cosmic and earthly rhythm. Day- and night-rhythms, activity- and rest-rhythms, rhythms of phosphorescence and change of colour, rhythmical vertical migrations of plankton, further, seasonal rhythms dominating hibernation, migration of birds

and propagation, and those connected with the rhythmical movements of tides, have been studied; not to mention the fundamental rhythms of the palpitation of the heart, the breathing of the vertebrates or the movement of the medusa (jellyfish).

What then is repeated in organic nature? Movement and rest; modes of action and reaction; modes of behaviour; and lastly *genotypes* which as internal structural laws determine the forms of a whole class of phenomena, the *phenotypes*. Thus the structural plan of a butterfly or of a lamb reappears. The reappearing pattern of connectedness is here much more complicated than on the level of inorganic nature. There it was the continuous change of positive and negative fields, here it is a complicated pattern. Seen from this point of view, *repetition is the basic principle of the species. Species is that specific something that repeats its structure in a group of individuals.* We must leave it to biologists to examine the working of this principle in reproduction and regeneration. The material, collected by Semon under the title *Mneme*, ought to be re-interpreted; for repetition seems to be more fundamental than memory. Memory is probably based on reproduction and repetition, and not the other way round.

What is repeated in History? Acts of perceiving and knowing, love, hate, valuation and action; objects to which these acts refer, like ideas, colours, notions and values; relations like those between parents and children, between the sexes, and between master and servant; forms of groups, societies and their institutions, constitutions and structures of states. Repetition is here still more complicated because consciousness is involved. It is an act of life which demands the participation of the whole person. Here at this specific moment of history are you expected to repeat. It is not your accidental existence which is in question. You can fulfill your destiny only by transcending your limited existence and by repeating what from the beginning the specific origin of your community anticipated for you. — This is the human paradox. Plants and animals live in unconscious repetition. In an uninterrupted series, modes of

action and re-action, functions and forms, once discovered, are repeated by them. If the individual vanishes into dust, already thousands of others are at hand to transmit the same forms to the remotest generations. Man, however, is privileged by the heavenly gift of freedom. He can apparently force the chain of repetitions and break his bonds. But when he has thrown open the doors, he finds himself face to face with chaos. Enjoying unrestricted liberty he loses his centre and therefore himself. If he wants to become himself again, there is no other way left than repetition in the highest form. Repetition alone enables him to take up the thread, to regain the centre, around which alone a new crystallization of the Self is possible. This, however, is more commandment than gift. Repetition demands of us a new vision, a turning away from the specious temptations of the world and a grasping of the essentials of human life. It demands of us a new heart, sympathies with the sufferings of past and present generations, as if they were our own. It demands of us a new will, acceptance of responsibility for the actions of our forbears and our own. "That which repeats itself in a chain of generations, art thou," this knowledge obliges us to do what may be repeated to all eternity.

Origin and repetition are therefore so interconnected that there is no origin which does not imply repetition *a parte ante* and *a parte post*, and no repetition, which is not original at least in one respect, and which therefore could become the beginning of new repetitions. Nothing perhaps illustrates this secret of creation better than music. A melody, revealing itself in a moment of grace to an artist or a group, is like a firm and apparently imperishable basic structure which emerges like a type and which remains the same through all generations in spite of many variations. Paradoxically, what seems to be most perishable and evanescent, is in fact the most persistent. Thus certain themes, though preceded by part-themes, suddenly appear in nature and history, and, if found, resound in manifold variations through considerable spans of time.

This interdependence of origin and repetition should offer an occasion to us for reflecting upon the task with which the

war-shattered nations are faced. What are the specific new forms we have to choose in reconstructing our civilization? And what law of repetition has to be followed? We have to ask these questions, if we do not want to succumb to the danger that acts which are not our own, that thoughts conceived by others, that forms grown in foreign civilizations, might be substituted for a new creation, and that the work which emerges might be still-born. "To will repetition," said Kierkegaard, "demands courage. Who merely wants to hope is a coward; who simply wants to remember, is voluptuous. But who wills repetition, is a man, and the more he is in earnest about it, the more is he a man. Who, however, does not understand that life is repetition and that the beauty of life consists in it, this man has condemned himself and does not merit anything better than his own ruin which will fall on him deservedly. For hope is an alluring fruit which does not satisfy; memory a scanty provision which does not satisfy; but repetition is the daily bread which gives bliss and satisfaction."

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## LOCKE AND WHITEHEAD ON INDIVIDUAL ENTITIES

### I

C. D. Broad has somewhere wittily remarked that all good fallacies go to America when they die. The truth of the matter is, of course, that a really good fallacy is like a really good story: it doesn't die. The present paper considers a fallacy which has not died and did not leave for America until it had become well entrenched in British thought. We shall deal with two formulations of it. One is found in the writings of John Locke; the other is in the philosophy of Alfred North Whitehead.<sup>1</sup>

There are several prefatory remarks which ought to be made about this examination. In the first place, we need a label for the fallacy which is being discussed. We shall use Whitehead's term, "the bifurcation of nature." Secondly, it should be noticed that the bifurcation of nature is not a fallacy in the narrowest sense of the term. Thus it has no conventional status among lists of logical fallacies. It is notable that while Whitehead inveighs heavily against it he never calls it a fallacy; he refers to it as a "vice" and a "vicious" theory.<sup>2</sup> However, since the theory expresses itself ambiguously and leads to contradictions, it would seem to merit the epithet "fallacy."

The plan of the remarks which follow is first to examine the bifurcation of nature as Locke propounded it, showing how the familiar problems in Locke's writings are the outcome of more deep-laid confusions. It will be shown, for instance, that Locke's initial difficulties lie in a doubly causal theory of perception, in which the "copy" theory of the relation between quality and idea becomes all but meaningless. Locke's doctrine

<sup>1</sup> The fallacy is older than Locke, of course. A rather good case could be made for its origin in the *De Anima* of Aristotle, for instance. It also could be shown, I believe, to be present in American philosophy considerably before the turn of the century.

<sup>2</sup> *The Concept of Nature*, (CN), pp. vi, 185.

will be treated as foundering on the problem of what the basis of qualitative individuality is. Secondly, we shall consider Whitehead's treatment, showing how he escapes Locke's particular form of the problem of individuality by refusing to countenance "substance" as a philosophically ultimate category. It will further be shown that Whitehead's substitute for "substance" is "event," an entity whose individuality rests to a considerable extent on quantitative considerations, and that, while Whitehead is able to avoid the qualitative difficulties of Locke, he gets into an analogous problem with regard to the quantitative delineation of an individual. This problem eventually leads him to a bifurcation which is remarkably similar to Locke's.

With regard to the portion of these remarks devoted to Whitehead the paper proposes to add something to both the criticism and the explication of Whitehead's philosophy.

(a) The criticism is not offered in the spirit of iconoclasm. There has been too much fruitless exasperation aimed at Whitehead, a fair measure of it by disillusioned former disciples. Indeed the contra-Whitehead outbursts combined with the pro-Whitehead eulogies have largely dominated such controversy as there has been about his philosophy. Thereby a great cloud of dust has been thrown up, lowering the illumination in a system of thought which, while it sparkles on the superficies, is already sufficiently dim in its recesses. Of temperate criticism, including, as it must, an exposure of important defects, there has been comparatively little.

(b) As for the explication, the present study is confined largely to *The Concept of Nature* and *An Enquiry Concerning The Principles Of Natural Knowledge*. Whitehead's magnum opus, *Process And Reality*, is a vast overhaul of many of his earlier philosophical conceptions, including the very scope of the philosophy of nature itself. The difficulties discussed here are, however, present in the mature work as well, though they are not so easily discerned because of the complex cosmological matrix in which they are embedded. Accordingly the study of the bifurcation of nature in terms of the early works should throw some indirect light on the mature period.



## II

Locke's doctrine of substance is notorious, and while it is true that the main outlines of it are well-known, they are by no means wholly clear. On the contrary there seems to be an ambiguity in many of its major aspects.

Locke held to a variant of the causal theory of perception. Mind is to be regarded as a "white paper" which is "furnished" with knowledge by experience.<sup>3</sup> "Experience," in turn, is to be divided into reflective experience, which arises in our awareness of our mental operations, and sensory experience, which is external in origin. Of the latter Locke says that the senses "do convey into the mind several distinct perceptions of things, according to those various ways wherein those objects do affect them; . . ." <sup>4</sup> Even here, at the outset, the doctrine is not wholly clear. Locke finishes the above cited sentence by stating that the senses "convey into the mind what produces there those perceptions [of qualities]," thus suggesting that he is implicitly committed to a doubly causal doctrine of sensation, i.e. the causal action of the object on the sensory mechanism and the causal action of the sensory mechanism on the mind. More strictly speaking, it is the quality in a body that arouses the "sensations or perceptions" in one's mind or understanding; in fact a quality is defined as the power in a body of producing such an idea (or sensation) in the mind.<sup>5</sup>

Now begins the familiar dichotomy, never to be healed, between substance as perceived and substance as subsisting. The qualities in a body are of two, possibly three, sorts. The two of which Locke feels relatively certain are called primary and secondary. The former are such as are "utterly inseparable from the body" and produce ideas which "resemble" them: solidity, extension, figure, etc.; the secondary qualities produce ideas which do not resemble them (through the agency of "insensible particles"): colors, sounds, tastes, etc.<sup>6</sup> The perception of these qualities is, however, not a perception of

<sup>3</sup> *An Essay Concerning Human Understanding*, II, I, 2.

<sup>4</sup> II, I, 3.

<sup>5</sup> II, VIII, 7-8.

<sup>6</sup> II, VIII, 9-15.

things but of their qualities only. How do we perceive things, substances? The idea of substance is a complex idea, "made voluntarily," by the mind out of simple ideas.<sup>7</sup> In a familiar but unclear passage, Locke says,

Secondly, the ideas of *substances* are such combinations of simple ideas as are taken to represent distinct *particular* things subsisting by themselves, in which the supposed or confused idea of substance, such as it is, is always the first and chief. Thus, if to substance be joined the simple idea of a certain dull, whitish color, with certain degrees of weight, hardness, ductility, and fusibility, we have the idea of lead;...<sup>8</sup>

Even if we restate the second sentence to read, "Thus if to *the idea of substance* be joined," etc., and some such insertion seems required, two serious doubts remain. (1) In the first sentence Locke tells us that the idea of substance is a combination of simple ideas; in the second, that it is that with which other simple ideas are combined. Is the idea of substance the core to which simple ideas cling or is it merely the outcome of their clinging together? Locke says both. (2) There is an additional and even more crucial difficulty. Although Locke is supposedly telling us how we form the ideas of particular things, the examples he gives are for the "idea of lead" and "the ordinary idea of a man," not this or that specific piece of lead or some certain man.

It is a surprising fact that the distinction between an idea of particular substance and that of a particular sort (to use Locke's own term) of substance, i.e. of a class of entities, is never clearly drawn in the whole of Book II ("Of Ideas") of *An Essay Concerning Human Understanding*. Even when Locke is at some pains to treat of the idea of substance in a rather detailed way, the confusion persists; for example, in treating of how we come to have ideas of "particular sorts of substance" he gives us a list: man, horse, sun, water, iron.<sup>9</sup> There are actually three recognizably distinct classifications present here: *classes*, man, horse; *individuals*, the sun (it seems unlikely that Locke is using the term generically, as an astronomer would); and *stuffs* (or "substances" as

<sup>7</sup> II, XII, 1-3.

<sup>8</sup> II, XII, 6.

<sup>9</sup> II, XXIII, 6.

the word is still used in common and scientific speech), water, iron.

In summary, there are two principal difficulties with Locke's account of the idea of substance. (1) He tells us both that it is compounded of simple ideas and that it is that *with which* simple ideas are combined. (2) He fails to distinguish the process whereby the idea of some particular substance is reached from that in which the idea of a certain "sort" of substance is achieved.

The two difficulties bear upon one another acutely. The first difficulty leads us to wonder if there are substances which cause the complex idea of a substance, as qualities cause simple ideas. Or is the togetherness merely the outcome of an organizing mind, as Kant later insisted? Mind makes the idea of substance "voluntarily." Does this mean that the option for such "making" rests entirely with the individual who did the making? And what is thus made? This leads us to the second difficulty, where to our confusion we discover that Locke speaks of the ideas of individual substances and sorts of substance indifferently. Yet the distinction between the two is important: for if a man tells us we "make" the idea of a class of similar individuals, we may be prepared to grant that perhaps the only status of a class is that of a concept whose existence is indeed dependent upon mental activity; but if he tells us we make the idea of an individual substance, we then ask, "Is there any external coercion in this making and if not, how is it that there is a common knowledge of the same things?" There is a confusion both as to the *origins* of the idea of substance and as to the *meaning* of the idea of substance, which brings us to the subject of the *knowledge* of substance. It is here that the fundamental difficulty lies.

"Our knowledge," says Locke "[is] conversant about our ideas only,"<sup>10</sup> and "Knowledge is the perception of the agreement or disagreement of two ideas."<sup>11</sup> Therefore "we can have knowledge no farther than we have ideas" and none "farther than we can have perception of that agreement or disagree-

<sup>10</sup> IV, I, 1.

<sup>11</sup> IV, I, 2.

ment."<sup>12</sup> At this point Locke suggests objections of the sort raised above — how there can be a community of knowledge, since all that is required of each man is a certain kind of perception of his own ideas.<sup>13</sup> His answer is that knowledge "is real only so far as there is a conformity between our ideas and the reality of things."<sup>14</sup> Thus to the question of the certainty of our knowledge has been added the question of its "reality." Locke again recognizes the obvious question which arises, "How shall the mind, when it perceives nothing but its own ideas, know that they agree with things themselves?"<sup>15</sup>

We have already noticed that Locke assumes a causal theory of perception. By the use of this assumption and an unfamiliar use of "agree" Locke is able to answer his question. He deals first with simple ideas. Simple ideas can not be made by the mind; so they must be the outcome of "things without us really operating upon us."<sup>16</sup> However, even though these ideas have an inner origin, they are not acts of the mind, since they occur "whether we will or no."<sup>17</sup>

These ideas

carry with them all the conformity which is intended [by "the will of our Maker"], or which our state requires.... Thus the idea of whiteness or bitterness, as it is in the mind, exactly answering that power which is in any body to produce it there, has all the real conformity it can or ought to have with things without us.<sup>18</sup>

This "conformity" does not indicate an obvious version of the correspondence theory, however. On the contrary, the agreement is of an extraordinary sort.

First, our simple ideas are all real, all agree to the reality of things, not that they are all of them the images or representations of what does exist; the contrary whereof, in all but the primary qualities of bodies, hath been already shown. But though whiteness and coldness

<sup>12</sup> IV, III, 1.

<sup>13</sup> IV, IV, 1.

<sup>14</sup> IV, IV, 3.

<sup>15</sup> IV, IV, 3.

<sup>16</sup> IV, IV, 4. This is a slip. Locke means "simple ideas of sensation" here. Simple ideas of reflection, such as those of perceiving and of willing, are what are obtained when the mind "turns its view inward upon itself." (II, VI, 1).

<sup>17</sup> II, I, 25.

<sup>18</sup> IV, IV, 4.

are no more in snow than pain is, yet those ideas of whiteness and coldness, pain, &c. being in us the effects of powers in things without us, ordained by our Maker, to produce in us such sensations, they are real ideas in us, whereby we distinguish the qualities that are really in things themselves. For these several appearances being designed to be the marks whereby we are to know and distinguish things which we have to do with, our ideas do as well serve us to that purpose, and are as real distinguishing characters, whether they be only constant effects, or else exact resemblances of something in the things themselves; the reality lying in that steady correspondence they have with the distinct constitutions of real beings. But whether they answer to those constitutions, as to causes or patterns, it matters not; it suffices that they are constantly produced by them.<sup>19</sup>

When an idea agrees with its quality, it is either a copy of that quality (where the quality is primary) or the result which that quality constantly produces. We can not turn aside to examine the unsatisfactoriness of this account in any detail. It should be noted, however, that Locke employs not only the assumption of a causal theory of perception, but some variant of "the similar effects from similar causes" doctrine as well. But since the secondary quality which causes the corresponding idea is always inscrutable, we have no way of validating or disproving the assumption that what produces the effect we call whiteness, for example, is always the same quality, or just one quality, or in fact that it is anything within our ken. It suffers all the defects of Kant's *Ding-an-sich*.

This difficulty bears directly on Locke's own criticism of the doctrine of substance. The ideas of substances are inadequate, for two reasons, says Locke. (1) We don't know all the effects that all other substances would have in any given substance. Thus some of the pieces of the jig-saw puzzle are missing. Our idea of any substance is doomed always to be defective. (2) Even if we had all the pieces of the puzzle, we would only have a complete picture of the qualities and not the "real essence" of the substance, from which they "flow."<sup>20</sup> However, the first weakness is one that applies to qualities as well as to substances. How can we classify all possible effects of one quality on another? In fact, it applies primarily to qualities, since they are what we know of substance. The second

<sup>19</sup> II, XXX, 2.

<sup>20</sup> II, XXXI, 13.

weakness would seem also to apply to secondary qualities as well, since our knowledge of them is exclusively as "powers" which produce certain kinds of ideas in us.

Locke is actually of two minds with regard to the doctrine of substance, both acquiescent and critical. When he criticizes the nature of substance in general, he is at his boldest. Self-examination on the subject of substance in general, says Locke, will show one that he has

only a supposition of he knows not what support of such qualities, which are capable of producing simple ideas in us; [It is something which men] have no distinct idea of at all, and so are perfectly ignorant of it, and in the dark.<sup>21</sup>

Despite this searching skepticism, however, Locke never relinquishes his hold on the notion of substance as an unrevealed substratum which binds together its several qualities; he employs it as a category of explanation apparently immune to suspicion. Thus we are repeatedly told that qualities are in bodies.<sup>22</sup> Again, Locke does not shrink from distinguishing what is in "objects themselves" from what is not.<sup>23</sup> Of primary qualities Locke says that they are in things "even when we perceive them not."<sup>24</sup> He also extends the canon of reality for simple ideas to ideas of substances. They "are real, when they agree with the existence of things."<sup>25</sup> He says they have their "archetypes without [i.e. "outside"] us."<sup>26</sup> The list could be extended, but the data are familiar.

We may summarize the difficulties in Locke's doctrine of knowledge<sup>27</sup> as follows: (1) With regard to the genesis of the idea of substance he leaves us in doubt whether such an idea of any substance is the outcome of the conjunction of a group of simple ideas or that mysterious core to which simple

<sup>21</sup> II, XXIII, 2.

<sup>22</sup> E.g. II, VIII, 7, 8, 9, 23.

<sup>23</sup> II, VIII, 10.

<sup>24</sup> II, XXIII, 9.

<sup>25</sup> II, XXX, 5.

<sup>26</sup> IV, IV, 11.

<sup>27</sup> The list is not exhaustive, of course. Some of the more familiar but irrelevant charges against Locke have been ignored, e.g. the weakness of the distinction between primary and secondary qualities, the unanalyzed employment of the causal relationship.



ideas are joined; he moreover does not clearly distinguish between single substances and sorts of substances. (2) He confines our knowledge to a knowledge of ideas and then gives us a test for the "reality of knowledge" that takes us beyond ideas to qualities and substances, which by definition are unknown, since they are not ideas. (3) He *explicitly* confuses the insufficiency of our knowledge of any one substance and the fundamental unclarity of our notion of substance in general and *implicitly* gives us grounds for severe doubts as to the correlation between ideas and qualities. Yet he continues to use the notion of substance, practically without restriction, thus casting doubt on the importance which he attaches to his own objections. At the loss of considerable detail we might summarize the basic objection to Locke's doctrine of substance as follows: he vacillates between treating substances as *things* having an existence independent of the knower and treating them as *ideas* bounded by the consciousness of the knower, while assuming a correspondence between the idea and the thing which his own theory of knowledge prevents him from supporting.

### III

The two-fold treatment of substance by Locke, i.e. the treatment of substance as both idea and thing, is what Whitehead calls the "bifurcation of nature."<sup>28</sup> The causal theory of perception is one way of presenting nature as bifurcated. The unfortunate result of this bifurcation is that there are two realities or "two natures, one is the conjecture and the other is the dream."<sup>29</sup> Whitehead's philosophy is an attempt from the very beginning to dispose of any theory of nature which bifurcates it. He proposes to exhibit nature as not bifurcated by removing the category of "substance" from its position of fundamental importance, substituting for it the notion of "event."

<sup>28</sup> In *Process And Reality (PR)* Whitehead says, "The merit of Locke's *Essay concerning Human Understanding* is its adequacy, and not its consistency" (p. 81). It is interesting to notice that the context of this passage is one in which Whitehead acknowledges his indebtedness to Locke.

<sup>29</sup> *CN*, p. 30.

An event is "what does become in nature. It can never happen again; for essentially it is just itself, there and then. An event is just what it is, and is just how it is related and it is nothing else."<sup>30</sup> An event is thus unique and concrete.

The analysis of nature into events is exhaustive; that is, when you have all the events in nature, there is nothing "left over."

Wherever and whenever something is going on, there is an event. Furthermore 'wherever and whenever' in themselves presuppose an event, for space and time in themselves are abstractions from events. It is therefore a consequence of this doctrine that something is always going on everywhere, even in so-called empty space.<sup>31</sup>

Whitehead continues the passage by offering the concept of an "ether of events" as a substitute for the older concept of an ether in which substances flourish. Nature develops, says Whitehead, but the events which comprise nature do not change. They "pass," i.e. are swallowed up in larger events which extend over them, but they never change.<sup>32</sup> The passage is "extension in the making,"<sup>33</sup> where extension refers to spatio-temporal extension. Events are thus "the field of a two-termed relation, namely the relation of extension . . . Events are the things related by the relation of extension."<sup>34</sup> The extension, when it is considered apart from the events of which it is an aspect, is the spatio-temporal continuum, the four-dimensional manifold. Space and time are thus derivative notions, relying upon an abstraction from actuality.<sup>35</sup>

Every event is a part of other events which include it, and every event includes other events as parts.<sup>36</sup> It follows that there can be no maximum and minimum events. Nevertheless, every event is particular, single, with a definite "where" and "when".<sup>37</sup>

<sup>30</sup> *An Enquiry Concerning the Principles of Natural Knowledge* (PNK), p. 61.

<sup>31</sup> CN, p. 78.

<sup>32</sup> PNK, p. 62.

<sup>33</sup> *Ibid.*

<sup>34</sup> CN, p. 75.

<sup>35</sup> PNK, ch. VIII; CN, ch. IV.

<sup>36</sup> PNK, p. 104; CN, p. 76.

<sup>37</sup> PNK, p. 61.

To summarize: Events are (1) concrete, (2) particular, (3) subject to passage (inclusion in other events), (4) neither permanent nor subject to change,<sup>38</sup> (5) composed of parts, which are other events, (6) comprising nature in so far as nature exhibits spatio-temporal aspects, (7) specific and unambiguous in spatio-temporal location.

Although the analysis of nature into events is exhaustive of nature, it does not follow that this is the only analysis of nature which is possible.

Our perceptual knowledge of nature [says Whitehead] consists in the breaking up of a whole which is the subject matter of perceptual experience,... This process of breaking up the subject matter of experience into a complex of entities will be called the 'diversification of nature'.<sup>39</sup>

However, there are different modes of diversification of nature which yield different entities. Confusion in the principles of natural knowledge can be traced to exclusive concern with one mode of diversification and the products which it yields.<sup>40</sup> The other major way in which nature may be diversified is by the discrimination of the objects present in nature. Objects are the ingredients in events which endow them with permanence.<sup>41</sup> Objects can "be again."<sup>42</sup> This permanence they possess because they are, strictly speaking, not spatio-temporal in character. They are only "derivatively" in space and time by reason of their relations to events.<sup>43</sup> Such permanence does not conflict with the fact that objects change. This change is merely the variety of the objects' relations to events, which pass in time and space.<sup>44</sup> Thus while events pass but do not change, objects do not pass but both are permanent and change.

Objects are related to events by the special relation called "ingression." The way in which an event becomes what it is qualitatively depends upon the nature of the objects which

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<sup>38</sup> *PNK*, p. 63.

<sup>39</sup> *PNK*, p. 59.

<sup>40</sup> *Ibid.*

<sup>41</sup> *PNK*, pp. 62-63.

<sup>42</sup> *CN*, p. 144.

<sup>43</sup> *PNK*, p. 63.

<sup>44</sup> *Ibid.*

ingress into it.<sup>45</sup> The event is what it is by reason of the objects which are represented in it, and the object is what it is because the event is what it is.<sup>46</sup>

Objects are abstract.<sup>47</sup> There are many different kinds of objects. All of them are, in some sense, universal. This is true of such widely diverse objects as the blue situated in a coat<sup>48</sup> and Cleopatra's Needle, which is situated in the train of events that also bears the ambiguous name "Cleopatra's Needle."<sup>49</sup>

A paradoxical consequence of the classification of objects as not in themselves spatio-temporal is that they are not composed of spatio-temporal parts. Events alone are so composed.<sup>50</sup>

If we summarize the properties of an object we see that they are rather neatly contrary to those of an event. They are (1) abstract, (2) universal, (3) not subject to passage, (4) both permanent and subject to change, (5) not composed of spatio-temporal parts, (6) "ingressing" into nature as spatio-temporal, and (7) general and ambiguous in spatio-temporal location (it being understood that they are "in" space and time only derivatively). The functions of events and objects in nature are complementary. Events are parts of continuous

<sup>45</sup> CN, p. 144.

<sup>46</sup> *Ibid.* Whitehead does not vary his adherence to the former part of this proposition, but he is less persistent about the latter part of it. For instance, he says elsewhere that an event need not be the situation of a well-marked object (CN, p. 78) and that the essence of an object does not depend upon its relations (PNK, p. 64). In *Science And The Modern World* (SMW) and *PR* this revised view is the one which prevails. In SMW, ch. 10, he says that events are externally related to (not constitutive of) objects, but objects are internally related to (constitutive of) events. In *PR*, p. 44, Whitehead says that the ingression of eternal objects "expresses the definiteness of the actuality in question. But their own natures do not in themselves disclose in what actual entities this potentiality of ingression is realized. Thus they involve indetermination in a sense more complete than do the former set."

<sup>47</sup> CN, p. 171. The objects spoken of here are "physical" objects and "scientific" objects. But the treatment of all kinds of objects in ch. VII of CN warrants the general statement.

<sup>48</sup> CN, p. 151.

<sup>49</sup> CN, pp. 169 ff.

<sup>50</sup> PNK, pp. 65-66.

series of inclusion. Objects are discrete. "The continuity of nature is to be found in events, the atomic properties of nature reside in objects."<sup>51</sup>

The distinction between object and event is one feature of Whitehead's attempt to avoid the bifurcation of nature into nature perceived and nature as causing perception. A second and even more important feature of this attempt is the distinguishing of a crucially important kind of event, the percipient event.<sup>52</sup> Commenting on the Berkeleyan form of the difficulty which we have already noted in Locke's writings, Whitehead says that to perceive something is to perceive one's relatedness to that thing:

The point here to be emphasized is that natural knowledge is a knowledge from within nature, a knowledge 'here within nature' and 'now within nature,' and is an awareness of the natural relations of one element in nature (namely, the percipient event) to the rest of nature. Also what is known is not barely the things but the relations of things, and not the relations in the abstract but specifically those things as related.

Thus Alciphron's vision of the planet is his perception of his relatedness (i.e. the relatedness of his percipient event) to some other elements of nature which as thus related he calls the planet.<sup>53</sup>

Nature is ever originating its own development, and the sense of action is the direct knowledge of the percipient event as having its very being in the formation of its natural relations... The traditional concept is an attempt to catch nature without its passage.<sup>54</sup>

Exactly what is a percipient event? We are told that it is a "factor,"

an event in nature which is the focus in nature for that act of awareness, and the other events are perceived as referred to it... This event is not the mind, that is to say, not the percipient. It is that in nature from which the mind perceives.<sup>55</sup>

Here we have three entities to consider, the mind, the percipient, and the percipient event. The first two are identified with one

<sup>51</sup> *PNK*, p. 66; cf. p. 102.

<sup>52</sup> The term is not used in *PR*. The fundamental notion of a percipient event is enlarged to include "feelings" and evaluations, but the "percipient" is still basically an event, or an "occasion" as Whitehead calls it in *PR*, e.g. p. 484.

<sup>53</sup> *PNK*, p. 13.

<sup>54</sup> *PNK*, p. 14.

<sup>55</sup> *CN*, p. 107.

another and differentiated from the third. The percipient event is, moreover, what provides us with the perception of "other events." However, the percipient event is

roughly speaking the bodily life of that incarnate mind... [ But ] the functions of the body shade off into those of other events in nature; so that... for other purposes it [the percipient event] may even be reckoned as more than the bodily life.<sup>56</sup>

The presence of mind in nature Whitehead calls its "foothold in nature," which is represented by a pair of events, only one of which is the percipient event, the other being the "present duration" which gives us the "when" of awareness, as the percipient event gives us the "where" and the "how."<sup>57</sup>

All told there are actually four factors in perception: "a percipient object, a percipient event, the complete event which is all nature simultaneous with the percipient event, and the particular events which are perceived as parts of the complete event."<sup>58</sup> (1) The "complete event" is all nature at any given moment, both what is perceived and what is not perceived. (2) Particular events are parts of this whole. (3) The percipient event, as we saw above, is the bodily life of the mind, which relates the particular events to what is variously called the mind, the percipient, and the percipient object.

(4) What is the percipient object? The percipient object, Whitehead says elsewhere, is a "recognizable permanence," the locus of which is the percipient event.<sup>59</sup> The percipient object is further identified as "the unity of the awareness whose recognition leads to the classification of a train of percipient events as the natural life associated with one consciousness."<sup>60</sup> Apparently "association" is a loose term designating a symmetrical relationship between consciousness and nature, for Whitehead also speaks of "the consciousness associated with the percipient event."<sup>61</sup> At the same time it must be understood that mind is not spatio-temporal in the same way that

<sup>56</sup> *Ibid.*

<sup>57</sup> *Ibid.*

<sup>58</sup> *PNK*, p. 13.

<sup>59</sup> *PNK*, p. 83.

<sup>60</sup> *Ibid.*

<sup>61</sup> *PNK*, p. 85.



events are, but only "derivatively" so by reason of the alliance of its passage with the passage of nature.<sup>62</sup> "Mind" is not a term referring merely to the percipient object as perceiving; it includes memory, "a disengagement of the mind from the mere passage of nature; for what has passed for nature has not passed for mind."<sup>63</sup> It is not abundantly clear exactly what the similarities and differences are between mind, consciousness, percipient, and percipient object. In general Whitehead seems to use the former two terms where he wishes to stress the fact that the mental part of a living organism has functions which extend or can extend beyond perception.<sup>64</sup> The latter two terms are generally used where the inspection of nature is being emphasized. But even this rule does not always hold. Near the end of *The Principles Of Natural Knowledge* Whitehead says, "A percipient object is in some sense beyond nature."<sup>65</sup> We are forced to agree with Whitehead's observation in the notes to the second edition of *The Principles Of Natural Knowledge*, written six year after the first edition was published, when he says, "...the percipient object is shadowy in this book and is clearly outside 'nature.'"<sup>66</sup>

In summary let us take an act of perception and all that it entails, in order to illustrate what in a particular example corresponds to each of the four major factors in perception: the percipient object, the percipient event, the complete event which is all nature at the moment of perception, and the parts of the complete event which are actually perceived.<sup>67</sup>

Let us suppose a man to be watching an airplane making a landing in a certain place at a certain time. We begin with the man as a certain "unity of awareness," a conscious mind. This mind can not be too sharply defined. As a mere consciousness it does not seem to occupy a status comparable to that of

<sup>62</sup> CN, pp. 69-70.

<sup>63</sup> CN, p. 68. Thus, for instance, in CN, p. 5: "...I do not wish to be understood as implying that sense-awareness and thought are the only activities which are to be ascribed to mind."

<sup>64</sup> CN, p. 68.

<sup>65</sup> P. 195.

<sup>66</sup> P. 202.

<sup>67</sup> The illustration which follows is mine.

the more public facts of nature, like the airplane landing; that is, it is not "in" space and time as the airplane is. But in being conscious it is related to that of which it is conscious by an event, namely the "percipient event," which can be understood as the "focus in nature" of an act of awareness, constituting the "bodily life" of the mind, "that in nature from which the mind perceives."<sup>68</sup>

The percipient event is in nature, then, relating the mind as mere consciousness to an event of which the mind is conscious. The percipient event provides the means of entry, so to speak, of the mind into nature. At the other, non-mental, boundary the percipient event gradually vanishes into the complex of nature,<sup>69</sup> part of which it binds into one single unit with the perceiving mind. The percipient event, in the example, is conscious-man-here-perceiving-an-airplane-landing-there-now. But the airplane is not the only ingredient in what is perceived, although it is the center of interest. The airplane's immediate environment is also present in what is perceived. The sky, the field, the attendants, and so on, are also "in the picture," and, to a greater or less degree, are relevant parts of it. If one starts with the percipient event and proceeds toward its mental side, one eventually encounters a consciousness which is "in nature," the percipient man. Proceeding in the other direction we discover those natural events of which the mind is conscious, the plane landing. These natural events are themselves related, non-consciously, to other events and these to others which, when taken as a whole, comprise the "complete event" which is the totality of nature at any given moment of perception. The percipient event is a relation or a set of relations which has for its relata on the one hand mind, and on the other certain discriminated events in nature that constitute parts of a whole which is called "all-nature-now."

Although Whitehead proposes in the early formulation of his philosophical ideas to treat objects and events as equally fundamental, he clearly emphasizes the metaphysical role of the event more than he does that of the object. As the analysis

<sup>68</sup> CN, p. 107.

<sup>69</sup> *Ibid.*

unfolds, the event assumes primary importance.<sup>70</sup> Undoubtedly Whitehead's epistemological interests contributed to his conviction of the basic significance of events. He recognized that any simple version of the transmission theory of perception would bifurcate nature hopelessly, pushing causal nature beyond the grasp of the perceiver, and that therefore any theory of natural knowledge which proposed to remove this difficulty, which Locke (and others) had unsuccessfully skirted, would have to render subject and object in more immediate contact than previous epistemologies had indicated.

There are two difficulties which face this undertaking. (1) The act of perception is an *occurrence*, and what the act presumably grasps is a *thing*; how to get the *thing* and the *act* together? (2) The problem is further complicated by the fact that ultimately one must bring the known object and the knowing object together; how to get the out-there thing into contact with the in-here thing which is so radically different from it?

Whitehead's solution of these difficulties turns on regarding nature as fundamentally composed of events. Thus *occurrences* are the basic natural units, including the occurrence which is a perceptive act — the percipient event in Whitehead's terminology. *Perceiving objects* are related to events by "association," and thereby have a "foothold in nature"; and *perceived objects* are related by the special mode of representation called "ingression." These devices allow objects a presence in what is temporal, but do not condemn them to intrinsic temporality, the characteristic of events.

Except for its peculiar relation to a knowing mind, the percipient event is like any other event — a spatio-temporal entity, and accordingly has relations of extensionality in different degrees of intensity and propinquity with all other events. Thus Mr. Percipient Object and Miss Perceived Object, who longed so to meet one another, being allowed by those stern duennas, the transmission theorists, to communicate with one another only by unsatisfactory long-distance telegraph, now

<sup>70</sup> It becomes even more fundamental, metaphysically speaking, in the later works.

are happily directly acquainted, face to face, for the fortunate reason that they have a relative in common, the percipient event who thus relates them to one another.

Locke could not bring together substance as existing and substance as idea, and he could not determine what substance might be apart from the qualities of which it was the allowed substrate. Whitehead escapes these difficulties by (a) insisting on nature as essentially in passage, spatio-temporal "process," as he later came to call it, (b) putting mind (as perceiving) into the natural process, (c) and considering perceived objects as only "derivatively" in space and time. That is to say, Whitehead breaks down the barrier between mind and nature by the postulation of the percipient event and analyzes objects so as to render them present in events, albeit they survive the temporality of this or that event by successively qualifying a whole train of events. Thus the mind is directly and primarily associated with events; it is one factor in a complex which has another ingredient, objects. The object qualifies the percipient event and outlives it. Mind and object are directly present to one another by sharing in the passage of nature, but neither is confined to the unit of perception, the percipient event. If we mix Locke's terminology with that of Whitehead in an attempt to show how Whitehead solves Locke's problem, we might get a statement such as this: "If it be asked why a substance and the idea of that substance conform to one another the answer is that they are diverse misnomers for the same thing; what is perceived is what is, for mind is not utterly separate from natural process, and objects are features of what are more fundamental metaphysical entities than they, events. Again, if it be asked whether substance is different from its associated qualities, the answer is that a substance is itself one of the qualities of an event, but need not thereby be regarded as confined to the event."

Locke's problem, however, is as pneumatically elastic as a balloon. Push it down in one place and it bulges out in another. The properties of events pose a peculiar problem for Whitehead. Nature can be viewed as both continuous and atomic, says Whitehead, depending on whether we focus our attention on the events of nature or the objects ingredient in nature.

Objects alone are discrete. Events are continuous, as we have already seen. "The continuity of nature is to be found in events, the atomic properties of nature reside in objects." We "apprehend" an event and we "recognize" an object. That is, "we apprehend nature as continuous and we recognise it as atomic."<sup>71</sup>

If this is so, how in the apprehension of nature do we discriminate the boundaries of the extension of events, since events exhibit nature as continuous? We would expect objects to function at least as the basis of such discrimination. Since it is objects which contribute the qualitative aspects to events in nature, one might say that although there are no *extensive gaps* between events, still there are qualitative differences between them which afford a natural basis for the distinguishing of one event from another.<sup>72</sup> As an example, an event having one color represented in it is thereby distinct from another contiguous event exhibiting another color.

There are at least two objections to such a solution of the problem, however. In the first place, comparatively few if any events exhibit the ingression of but a single object. Most events include a variety of qualities. This being the case, if one is to use qualitative distinctions as the means of delineating a boundary between any two events he must show why some qualitative differences are more significant for such purposes than others. Why draw a boundary between this pair of qualities rather than some other pair which may be considered as characterizing the same complex events? Secondly, suppose we are merely examining some event for its quantitative aspects, neglecting the qualitative elements entirely, how then are we to separate one event from another? For instance, suppose I follow the directions which tell me I will find, let us say, a treasure somewhere in the middle of Potter's field. The very word "somewhere" — indefinite as it is — obviously indicates that what is meant by "middle" is not the intersection of the field's great diagonals but a general region including such an intersection as its own rough "center." The event which is

<sup>71</sup> PNK, pp. 66-67.

<sup>72</sup> Thus, for instance, CN, p. 144. "The demarcation of events... is effected by the objects which we recognise as their ingredients."

Potter's-field-seen-by-me includes the event which is the middle-of-Potter's-field-seen-by-me. The *qualities* of the two events may be vastly similar throughout. The earth may be of a uniform brown everywhere, equally soft or hard, grown with the same stubble and equally rough. Where is the border line between the smaller event and the larger one? The answer is, "Within poorly defined limits, pretty much wherever you want it to be." The boundary will be arbitrary, based on guesswork and what seems practical. It is subjective, i.e. it will vary from man to man.

The illustration is confined to the spatial boundaries between an event and a larger event which includes it. But the same problem obtains where events which are contemporary abut one another spatially (i.e. Potter's-field-now is itself defined by an arbitrary distinction between the object which is Potter's field and the object which is Johnson's field next door) and where events are co-spatial abut one another temporally (i.e. let us say, the situation described by such an exclamation as "One moment he was there and then, the next moment, he was gone!"). The only clear cut distinction between events is in the case of those events which are separated either spatially or temporally (or both) by another well defined event. In this case we have settled the problem of distinction, but the problem of discerning the boundary has been doubled, for now we have both the boundary between the middle event and the first event and the boundary between the middle event and the other event to account for. That is, if we wish to distinguish event *a* from event *e*, we may do so without the assistance of a boundary simply by discriminating event *c*, but now we have both the boundary between *a* and *c* and that between *c* and *e* to account for in terms of what is *actually present in experience*, if we are to be both accurate and non-arbitrary.

When Whitehead is concerned exclusively with the sense-awareness which is the foundation of our knowledge of nature, he speaks in terms which seem to argue for the marked definiteness of what is given in sense-awareness.

... not only is any act of sense-awareness just that act and no other, but the terminus of each act is also unique and is the terminus of no



other act. Sense-awareness seizes its only chance and presents for knowledge something which is for it alone.<sup>73</sup>

The duration which is the immediate disclosure of our sense-awareness is discriminated into parts.... These parts are limited events.... a limited event possesses a *completely defined limitation of extent* which is expressed for us in spatio-temporal terms.<sup>74</sup>

These passages at least suggest that the definiteness of events is in nature and that sense-awareness presents such definiteness for discovery by the mind.<sup>75</sup> However, when Whitehead examines events as present in *perception*, it becomes clear that the event receives its definiteness arbitrarily, at the discretion of the percipient, through an act of thought. There is a basic *assumption* that events are definite and clear cut, even though there is no *perceptual experience* which justifies the assumption. As Whitehead says,

In perception no event exhibits definite spatio-temporal limits. A continuity of transition is essential. The definition of an event by assignment of demarcations is an arbitrary act of thought corresponding to no perceptual experience. Thus it is a basal assumption, essential for ratiocination relating to perceptual experience, that there are definite entities which are events; though in practice our experience does not enable us to identify any such subject of thought, as discriminated from analogous subjects slightly more or slightly less.<sup>76</sup>

#### IV

The problem which Locke and Whitehead share may be stated as follows: "What is an individual thing, and what happens when the mind is cognizant of it?"

Locke was in the uneasy position of at once criticizing the traditional category of substance and having nothing to substitute for it. To the former part of the problem, as above stated, Locke both answers that a substance as *inspected* represents itself merely as a group of qualities and persists in treating substance as *conceived* as being that from which the qualities "flow." To the second part of the question he answers

<sup>73</sup> CN, p. 54; italics mine.

<sup>74</sup> CN, p. 74; italics mine.

<sup>75</sup> To be sure, the second citation is ambiguous since it does not identify the source of the "completely defined limitation of extent."

<sup>76</sup> PNK, p. 74; cf. also CN, p. 59.

that qualities in substances are causes which produce effects that are ideas in the mind. But by limiting knowledge to ideas Locke deprives us of a method for validating or disproving his assertion. Locke's repeated employment of the category of substance, in the face of his own objections, indicates that he at least implicitly finds the category of substance indispensable to thinking about experience. He tells us explicitly that the idea of substance is made by the mind out of simple ones.

When Whitehead confronts himself with the same problem he answers that the fundamental stuff of nature is unique events, which arise, are, and pass, as they are included in other events which extend over them. Objects are qualities of these events. Thus objects are, indeed, nothing but qualities, but they are not therefore to be regarded as the ultimate building blocks of the universe. Whereas the salient feature of Locke's substance is that it issues and binds together qualities, the salient feature of Whitehead's event is that it is spatio-temporally extended. Locke's individual is an individual by reason of its being the unitary foundation of its qualities. Whitehead's individual, being essentially a spatio-temporal being, is an individual by reason of its definite spatio-temporal boundaries. When we ask what the empirical foundation of individuality is in each case, we get unsatisfactory answers. Locke says the mind makes the idea of substance out of simple ideas which are not ideas of substance, and that the substance with which the idea mysteriously "agrees" is inscrutable. Whitehead says that the demarcation of an event is "an arbitrary act of thought, corresponding to no perceptual experience," but that "it is a basal assumption, essential for ratiocination relating to perceptual experience, that there are definite entities which are events," although experience does not enable us "to identify any such subject of thought."<sup>77</sup>

The fallacy in Locke survives him but changes its form. Whitehead calls Locke's fallacy "the bifurcation of nature." The fallacy begins by introducing into the topic of knowledge two treatments of "substance," one as an idea, the other as

<sup>77</sup> Cited above.

a thing. It ends by not only failing to account for how the two may be said to be counterparts of one another, but by actually rendering the two incongruent. Whitehead inveighs against the bifurcation of nature by telling us that the knowledge of nature is direct and from within nature. He says, as a matter of fact, that "we may drop the term 'apparent'; for there is but one nature, namely the nature which is before us in perceptual knowledge."<sup>78</sup> Yet when he comes to examine the spatio-temporal limits of an event, without which it could hardly be said to be an individual, he tells us both that events are given in sense-awareness as having a definitely limited extent and that our experience *does not* yield events having definite boundaries — rather this is the outcome of an arbitrary act of thought. Not only is there a rather clear contradiction here, but the latter assertion entails its own form of "bifurcation," for we now have nature as perceptually experienced and nature as thought. Locke's individual entity (substance) is an explanation of or the outcome of the unity of its qualities, depending upon whether we choose the subsistent thing or its idea respectively. Whitehead's individual entity (event) is the *result* or the *cause* of a certain spatio-temporal demarcation, depending on whether we emphasize the knower or the known, respectively. The bifurcation in Locke turns on an analysis of the qualitative aspects of nature. The bifurcation of nature in Whitehead turns on an analysis of the quantitative aspects of nature.

Locke and Whitehead have the virtue of dealing with what is essential. The problem of what constitutes an individual has an extraordinary range of significant application. It embraces such widely diverse fields as theoretical physics and religious philosophy. In the former case it has to do with the classification of subatomic particles; in the latter it becomes the perennial problem of immortality. We should be grateful for any contemporary philosophy which deals with important issues, especially in a time when many philosophers eagerly bypass fundamentals in order to get at fields where the grass is taller

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<sup>78</sup> CN, p. 40.

and the footprints are less numerous.<sup>79</sup> The aim of the criticism in this paper is to expose the peculiarly persistent character of a fallacy in two widely diverse accounts of perceptual knowledge. The criticism of Whitehead in terms of the early works was deliberately chosen as providing an elementary introduction to the similar but much more complex treatment of perception to be found in *Process And Reality*.<sup>80</sup> This treatment, the author feels, can only be interpreted as arising from an attempt to dissolve the many difficulties (including the one here discovered) which appear in Whitehead's initial efforts to give an account of the relation between mind and nature.

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<sup>79</sup> As an example bearing on the very topic with which the present paper is concerned, consider Rudolf Carnap's willingness, without explanation, to regard a physical object as an event, *An Introduction To Semantics*, p. 7; cf. p. 5.

<sup>80</sup> The problem is surrounded by a bewilderingly complex cosmology in *PR* which in general defies the isolation and withdrawal, for separate scrutiny, of any of its major topics. A secondary purpose of this paper, however, is to throw light on certain aspects of *PR* by considering some of the roots of that work. The particular problem which we have been discussing comes to a focus in *PR*, pp. 472-477, in the form of the doctrine of "strains." See also pp. 95-99 and the context of the indexed topic "definiteness."



## DESCARTES'S CONCEPTUALISM

Although Descartes's presentation of his theory of universals is to be found only in very brief and fragmentary passages, we must not infer that the theory is a minor or trivial one, discernible only through the spectacles of pedantry. Indeed, if the importance of a theory may be measured by the length of its survival, his doctrine of universals is more important than many of his more familiar views. His extreme metaphysical dualism was abandoned by the time of Spinoza; his geometrical conception of nature, by the time of Newton and Leibniz; and his radical rationalism, by the time of Hume and Kant. But the anti-realism of his theory of universals, which became, as soon as he propounded it, the official modern doctrine, has never until our own day been seriously disputed; and even now, in spite of the efforts of Russell, Whitehead, Santayana, Husserl, and the neo-scholastics, the majority of contemporary thinkers remain faithful to the anti-realism of Descartes.

In this paper I shall try to do three things: first, to present Descartes's theory of universals; second, to argue that it creates insoluble difficulties for his system; and third, to explain why Descartes, who was not unaware of these difficulties, nevertheless persisted in holding it.

His theory, as I interpret it, was advanced in opposition to the Platonic and Aristotelian realisms which dominated the middle ages. Positively and more specifically it may be characterized as a form of conceptualism. Now the historians of philosophy have not in general recognized that Descartes was a conceptualist; indeed, for the most part, they say even less about his theory of universals than he did. My principal concern, therefore, in this first part of the paper, is to show that Descartes *was* a conceptualist. This I shall endeavor to do first, by arguing from the known nature of his system that he could not have been anything else, that nominalism, Platonic realism, and Aristotelian realism, the sole alternatives known to him, were precluded by capital theses of his philosophy; and second, by quoting passages from Descartes which seem to me to confirm my contention.

Descartes was certainly not a nominalist. For he insists upon the radical distinction between imagination and pure thought, while it is the essence of nominalism to maintain that no such distinction exists and that what is called thought is simply a process of imagination. Let us put the issue in somewhat different form, taking as our point of departure John Locke's question: "How does a word become general?" How for example does the particular noise "triangle" succeed in standing indifferently for any one of a large number of objects? The nominalist answers that the generality of a general word can be explained without the assumption of general ideas. Daily experience shows us how a word becomes general: I notice an arrowhead; I notice a wedge of cheese; I observe that their shapes are similar; and I say to myself "I shall call any object a triangle if its shape is like that of this arrowhead or this piece of cheese." A word, then, according to nominalism, becomes general by being made the sign of a class of particulars. For Descartes, however, that account of generality is altogether too simple-minded. Like Plato he holds that nobody ever saw a triangle. The sides of the apparent triangles of sense all wobble, however slightly. The ideas of mathematics must therefore be innate in us. They are pure standards, which the impure objects of sense only imitate. To the slovenly empiricism of the nominalist Descartes's rationalism is irreconcilably opposed.

Is he then a Platonic realist? Let us consider. For the Platonic realist a word becomes general by being made the sign of a form, which is eternally real not only apart from the accident of its being imitated by a piece of cheese or something else but also apart from the accident of its being thought of by you or me or somebody else. Mind and matter, therefore, are not the only kinds of reality. There is a third and, for Plato, more fundamental kind, which is neither mental nor physical but logical. But this Platonic outcome is of course entirely unacceptable to Descartes, whose refusal to admit any kind of reality besides thinking substance and extended substance is "familiar to every schoolboy."

Can Descartes then pursue the famous middle way of orthodox scholasticism? Can he be a moderate or Aristotelian



realist? Can he say with Thomas Aquinas — I do *not* quote — that a word becomes general by being made the sign of a form which indeed is real apart from any mind's thinking of it but which is not real apart from the piece of cheese or whatever other objects happen to embody it? No, he is too much of a Platonist to admit that the form is ever really embodied. Aristotelian realism, like nominalism, is excluded by his rationalism.

His only recourse therefore is to a psychologized Platonism. He must take the Platonic forms from their logical heaven and put them in the mind. He must hold that a word becomes general by being made the sign of a general idea, a form that has only a mental reality. With nominalism, as against realism, he must hold that external objects are never more than similar to each other, for if they were identical in any respect, they would have a form in common; on the other hand, with realism, as against nominalism, he must hold that there really are general things, universals, forms, though unlike the realist he must limit them to the mind. And this is, precisely, conceptualism.

After this proof *a priori*, so to speak, that Descartes was a conceptualist, let us turn to the *a posteriori* proof, the examination of Descartes's actual utterances concerning universals.

Only one passage of direct attack upon nominalism need be quoted. For this purpose the sentence about the thousand-sided figure in the *Reply to the Fifth Objections* will serve as well as any:

As a matter of fact we perceive [that is, think] the whole figure [of the chiliagon] at the same time clearly although we are not able to imagine it as a whole at the same time; which proves that the two powers of understanding and imagining differ, not so much in respect of more and less, but as two wholly diverse modes of operation (HR II, 229).<sup>1</sup>

Descartes's summary of Principle LVIII of Part I of the *Principles of Philosophy* is perhaps his most emphatic assertion of conceptualism as opposed to realism. It consists of the clause:

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<sup>1</sup> "HR" is used as an abbreviation for *The Philosophical Works of Descartes*, translated by Elizabeth S. Haldane and G. R. T. Ross. Cambridge, England, 1931.

That number and all universals are simply modes of thought (HR I, 242).

Principle LVIII itself reads as follows:

Similarly number, when we consider it abstractly and not in created things, is but a mode of thinking; and the same is true of all that which [in the schools] is named universals (HR I, 242).

At first glance the limitation "when we consider it abstractly and not in created things" seems to contradict the clear conceptualism of the summary. Indeed its apparent admission that number and other universals may be "in created things" seems to imply Aristotelian realism rather than conceptualism. But I cannot believe that that is the correct interpretation of the passage. For Descartes would surely not have said without qualification that universals are simply modes of thought, as he does in the summary of this principle, if he had not meant it. The point of the passage seems to me to be this: that while of course external objects have number and other properties — for example, the five pennies in my pocket are actually five — nevertheless number as such, and the number five as such, and all other universals, are simply modes of thinking.

The next principle, Principle LIX, is also a leading passage on universals. Descartes writes:

Universals arise solely from the fact that we avail ourselves of one and the same idea in order to think of all individual things which have a certain similitude [*quæ inter se similia sunt*]; and when we comprehend under the same name all the objects represented by the idea, that name is universal (HR I, 242-3).

The occurrence of the word "similitude," in this passage, seems to me very significant. It belongs to the vocabulary of conceptualism and nominalism, not to that of realism. For according to realism the same word is predicable of two objects in virtue of their qualitative *identity*, in virtue of their having a form *in common*; while according to nominalism and conceptualism it is predicable of them in virtue of their *similarity*. Now, one must of course not bear too heavily upon a single word; realists have been known to express themselves loosely. But Descartes was accustomed to the precise use of philosophical language in discussions of this problem. Consider, for example, the statement of Aristotelian realism given in the textbook of scholasticism, the *Summa Philosophica* of E. de St. Paul, published in Paris in 1609, a book which Descartes is known to

have studied, and from which Professor Gilson frequently quotes in his *Index Scolastico-cartésien*:

Universals are... real beings common to the many... [*Universalia sunt... vera entia multis communio...*]

It seems to me incredible, in view of Descartes's familiarity with this exact language, that in his one formal treatment of the problem of "how universals arise" he should have said *similia* if he had meant *communia*. The choice of *similia* is surely intended as a deliberate slap in *communia*'s face.

The next passage is also from Part I of the *Principles*, an excerpt from Principle LV:

The duration of each thing is a mode under which we ... consider the thing in so far as it continues to exist; and order... and number are not really different from the things that are ordered and numbered... but are only the modes under which we consider these things (HR I, 241).

This, I grant, is susceptible of either a conceptualistic or an Aristotelian interpretation. But its opposition to Platonic realism is obvious; and I quote it on that account. When it is combined with the next and last passage, which, on the other hand, is clearly inconsistent with Aristotelian though not with Platonic realism, our case, I think, is complete:

Your attack upon the universals of the dialecticians, which you undertake, does not touch me, since I do not conceive of universals in the same way as they do. But as to the essences which are clearly and distinctly conceived, such as that of the triangle or of any other geometrical figure, I shall easily compel you to acknowledge that the ideas existing in us of those things, are not derived from particulars (From the *Reply to the Fifth Objections*; HR II, 226-7).

This is Descartes's formal repudiation of the scholastic doctrine of universals.

If my quotations are not quite as explicit as one could wish, that is due, I suggest, to the fact that Descartes had an uneasy conscience about his theory. He is aware — though perhaps only vaguely — of unsolved difficulties in it. Universals embarrass him, and this explains, I think, not only the obliqueness but the infrequency and excessive brevity of his remarks about them.

Of these difficulties I shall confine myself to the famous one which was seized upon by Arnauld and other contemporaries of Descartes and which Descartes on several occasions tried to explain away, namely, the "Cartesian circle."

My view is that the so-called circle is really a circle, in spite of Descartes's contention to the contrary, and that this circularity in his reasoning is a consequence of his conceptualism.

The circle consists of course in the fact that while our doubts concerning the evidence of our ideas — even our clear and distinct ones — can be removed only by the knowledge that there is a God and that he is no deceiver, this knowledge can be acquired only by the use of our ideas.

Descartes's reply to the charge of circularity is always the same. He says that a knowledge of God's veracity is unnecessary except as a guarantee of previously established conclusions which are now remembered but whose proofs are not.

This rejoinder lacks the usual Cartesian cogency. The notorious fallibility of the human memory is not lessened by the reflection that God, like George Washington, cannot tell a lie. The recourse to the truthfulness of God, far from solving an epistemological problem, merely calls attention to a theological one. Moreover, Descartes himself, as soon as he can forget the irritating Arnauld, puts his *ad hoc* reply up his sleeve again and makes it clear that when he appealed to God's veracity he was trying to validate far more than today's use of yesterday's conclusions. Thus he says categorically in Meditation V:

The certainty of all other things depends on it [the knowledge of God's existence] so absolutely, that without this knowledge it is impossible ever to know anything perfectly (HR I, 183).

The truth of the matter seems to me to be this. As a conceptualist Descartes is obliged to hold that intellection is no vision of the nature of things, it is a mere perception of ideas in the mind; and perhaps ideas are simply pictures of ourselves, perhaps they are but eccentricities of our imperfection. Therefore any inference from them to things outside is unwarranted; there is nothing to prove that our conclusions from them are better than prejudices. The *cogito*, no doubt, is valid; for it makes no extra-mental claim. Besides, it is not an argument; it does not use ideas: thinking, I find myself. But any argument from ideas to the existence of God, just as much as any argument from ideas to the existence of bodies, requires some guarantee external to the mind. I must transcend my own subjectivity to find the guarantee, but until I have found the

guarantee I cannot transcend my subjectivity. In this situation it might have been appropriate for Descartes to pray. But the philosophical help of God is unavailable except at the cost of circularity.

Why, then, in spite of the Cartesian circle — imagine a philosopher's mortification at having a fallacy named after him — why, I say, in spite of the Cartesian circle, which is circular, and which is the result of his conceptualism, did Descartes insist on remaining a conceptualist?

It may seem that an answer has already been provided in the first part of this paper. His rationalism, as you will recall, is incompatible both with nominalism and with Aristotelian realism, his dualism is incompatible with Platonic realism, and therefore conceptualism is all that remains. This, however, is only the beginning of an answer. For the tempting possibility suggests itself that he might have got rid of his conceptualism and become a Platonic realist by giving up his dualism. Naturally I do not mean that Descartes could have abandoned "the real distinction between soul and body"; I am suggesting that he might have added Platonic Ideas as a *third* kind of reality. His proof of dualism is concerned entirely with the positive part of that doctrine; he bends every effort to prove that there are *at least* two kinds of substance. But the negative part of dualism, the thesis that there are *no more* than two, he seems to take for granted without proof. Moreover, if such a proposal is legitimate, may we not propose an alternative change in his system whereby he would have become an Aristotelian realist?

In order to find the real explanation of his conceptualism we must go behind his system as it actually existed, back to the tremendous purpose that governed its construction. The purpose of Descartes's philosophy, as Professor Gilson has shown, was to *provide a foundation for his physics*. Now in order to make possible his mathematical, mechanistic physics he must free our conception of Nature of all final causes. But Nature, as scholasticism envisaged it — and scholastic physics was the only alternative to his own that Descartes recognized — swarmed with final causes. Their principal seat was the so-called substantial form. Or rather the substantial forms of things *were* final causes, for Aristotelianism has always held that in the last analysis the formal cause and the final cause

are the same. So it is not surprising that Descartes objected to the substantial forms. As final causes they are the principal obstacle to his physics, — to the emerging physics of the seventeenth century. *The forms, then, at all cost must be extruded from Nature.*

Where then are the forms to go? Shall they be allowed to ascend to the Platonic Heaven? Never — lest they still shed their baneful light on Nature. Even in Platonism, material things participate in, or at least imitate, the forms. The forms must have no such relation to Nature. They must be put in the one place where Descartes can watch them to make sure that they do no harm, namely, in his own mind.

In this reasoning from mathematical physics to conceptualism as its supposed necessary condition, Descartes, it seems to me, made a great and tragic mistake. No doubt it was unavoidable; the fact that it was Descartes who made it is sufficient evidence of that. For modern physics the mistake was not an unhappy one; but it was disastrous for modern philosophy.

The mistake was this. Descartes failed to perceive that the ancient and medieval notion of form, whether Platonic or Aristotelian, is a complex of two separable elements, a logical or formal element, and an ethical or final element. Now the final element was obnoxious to his physics; but the logical element, which is indispensable for philosophy, was, in relation to physics, entirely innocent. He should have purged the forms of finality and retained them as pure logical structures; instead he withdrew them from external reality. He chose between the interests of physics and the interests of philosophy and he chose in favor of physics. But if he had distinguished the elements, the choice would have been unnecessary. He is to be thanked for making modern physics possible; his great name is his reward. He is to be blamed for making modern philosophy — I will not say impossible — but very difficult; and his punishment is the Cartesian circle.

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**GOD, TRANSCENDENCE AND FREEDOM IN THE  
PHILOSOPHY OF JASPERS**

Outside the strictly methodological camps Karl Jaspers is widely regarded as one of the foremost European philosophers. In spite of the very limited availability of his thought in English, and in spite also of the strongly prejudicial treatment accorded him in Grene's *Dreadful Freedom*,<sup>1</sup> his position is attracting increasing attention in the English-speaking philosophical world. Philosophers and theologians interested not only in anything having an Existentialist flavor but also in any vigorous and convinced discussion of metaphysical problems, are finding him worth very careful consideration. It is my purpose in this paper to comment briefly upon Jaspers' interpretations of three such questions. These lie at the heart of his system, a system imposing not only for its inclusiveness and penetration but also for its formidable terminological and stylistic complexities. I have nothing more than a smattering of knowledge of that system, but I have gone quite far enough into it to realize that a sturdy guide would be worth much fine gold, and a knowledgeable companion to cheer one when on the heights and wrapped in impenetrable mists, would be worth many precious stones.

Jaspers' is an existentialist system, but this does not mean that it is an elaboration of a private and virtually incommunicable vision. Just as surely as the metaphysicians of the past and of those continuing traditions where such problems are taken seriously, his concern is with Being. He does not mean to talk about Being from a "standpoint" so esoteric, elusive and doctrinaire that neither Being nor the "standpoint" is really intelligible.<sup>2</sup> On the other hand the program is not that of

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<sup>1</sup> *Dreadful Freedom*, Marjorie Grene, University of Chicago Press: 1948. She finds it hard to believe that there is anything Jaspers has done that somebody hasn't done better. She is willing, however, to credit him with honesty and uprightness.

<sup>2</sup> "Die Philosophie des Umgreifenden hat keinen Standpunkt. Man befragt eine Philosophie, welchen 'Standpunkt' sie vertrete, was in ihr

formulating the system of systems, the all-comprehending system.<sup>3</sup> In his own terms it is a matter of "systematic" — of the delineation and analysis of the structure of Being, where 'delineation' is ultimately elucidation (*Erhellung*) and not 'objective analysis' (*Gegenstandsforschung*). Now whether or not the latter distinction arouses any enthusiasm, the intent is to lay bare the character and structure of being; and this intent will be honored except in the most doctrinaire positivistic — both logical and theological — circles.

Our concern is with God, Transcendence, and Freedom. The first task is to relate these notions to Being-as-such. Being as such is the *Umgreifende*, a term translated recently in *The Perennial Scope of Philosophy*<sup>4</sup> as the Comprehensive. This will perhaps do as well — and as little — as any other, even though it lacks the resonance of the German. The Comprehensive is what appears, or what is signified or symbolized in its appearances, in the multiple differentiations of Being. It is what every particular thing "intends". Lying behind or beyond the subject-object relation (*Spaltung*) it is not itself an object of knowledge, yet every object and every act of apprehending objects involves it.<sup>5</sup> Here one important aspect of Transcendence already appears: that which transcends or eludes standard cognizing and is yet materially implicit in all cognition and

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eigentlich gemeint und gewollt werde, was ihr 'das Letzte' sei. Eine Philosophie des Umgreifenden verwirft diese Frage. Sie sucht alle möglichen Standpunkte, vermag sich auf jeden zu stellen, geht hinein in alle Gestalten, in alle Masken und in alle Welten." *Von Der Wahrheit*, 181; Piper & Co., Munich, 1947. Referred to hereafter simply as *Wahrheit*.

<sup>3</sup> The Philosophy of the Comprehensive is not presumed to be a comprehensive system, I should think, in the Hegelian sense. At the same time he has undertaken a criticism of the historically significant systems of metaphysic. Cf. *Philosophie*, Vol. III.

<sup>4</sup> *The Perennial Scope of Philosophy* is the mildly astonishing title given to Jaspers' lectures entitled in the original, *Der Philosophische Glaube*. The translation is by Ralph Manheim, the publisher is Philosophical Library, 1949.

<sup>5</sup> "Das Umgreifende wird nicht selbst zum Gegenstand, aber kommt in der Spaltung von Ich und Gegenstand zur Erscheinung. Es selbst bleibt Hintergrund, aus ihm grenzenlos in der Erscheinung sich erhellend, aber es bleibt immer das Umgreifende." *Einführung in die Philosophie*, p. 30. Artemis, Zurich, 1949; cf. *Perennial Scope of Philosophy*, pp. 9, 28.

which we directly apprehend in what Jaspers' calls Faith (*Glaube*, faith as *trust* he designates as *Vertrauen*). Faith is one of the cardinal elements of his system. It includes the intuitive apprehension of Being, a "knowing" that is above ordinary knowledge, which is concerned with objectified being; and it also includes *decision*, the radical exercise of radical freedom by which I become truly myself. "Was Ich glaube, das bin Ich" (*Wahrheit*, 355).<sup>6</sup>

*Umgreifende* or Being-as-such is apprehended through its modes. Passage to the modes of Being is effected through the subject-object relation,<sup>7</sup> which distinction itself, as we have just seen, is transcended in Faith. Being-as-such differentiates itself into Being-in-itself and Being-which-we-are. (Jaspers himself says that this a self-differentiation: "Das eine Umgreifende spaltet sich... in die Weisen des Umgreifenden. Statt dass uns ein einziges Unsagbares die unbestimmte and unerfüllte Grenze bleibt, gliedert sich das Umgreifende gleichsam in Räume" (*Wahrheit*, 47). This notion of a self-differentiating whole reminds one of the *Phenomenology of Mind*. It is more important to note that it suggests a kind of penetration of Being-as-such or the *Umgreifende* that belies the original description of the latter as being largely *Hintergrund*. Taken seriously, it would break free of the Kantian mold and give us the suggestion at least of real agency, not our own, really though vaguely apprehended in the *Umgreifende*.) Being in itself, or "being that surrounds us," is what stands over against us, and it has a twofold modification: (1) the World, (2) the Transcendent.

(1) The World is being which we are not. It is the incomprehensible other in which we are "immersed" and with which we are involved (cf. *Wahrheit*, 85ff.; *Perennial Scope of Philosophy*, 12ff.); it is the origin of all reality that we call material

<sup>6</sup> Cf. *Wahrheit*, 640, where he says that *Glaube* is the medium through which the truth pertaining to Existenz is apprehended: "für Existenz der Satz gilt: *Glauben ist Sein*" (italics his, p. 641).

<sup>7</sup> This is one of the decisive points at which the Kantian influence seems very strong. The whole structure of Being and Symbol (*Chiffer*) appears to me to be controlled by a Kantian distinction between thing-in-itself and phenomenon.

and to which the categories of Substance, Time, Space, Causality, Thinghood, etc. are applied (cf. *Wahrheit*, 89-90). Yet the World is more than this. "Es ist Grund und Ursprung der Realität," and we are therefore in it and of it. "Die Welt macht möglich, dass wir sind, and was wir sind und sein können" (*Ibid.*, 92).

(2) The World is but one mode of Being-in-itself. The other mode can hardly be called mode in the same sense because it is *Transcendenz*, that to which the world points, and which is not determinate being as the world is determinate being. To us the World is *other*: *Transcendenz* is the radical Other. The World is not *causa sui*. In mythological language, it is created being (*Wahrheit*, 90).

The widest significance can be given to Transcendent Being only from the side of Being-which-we-are, and we turn now to this other primary differentiation of the *Umgreifende*. Further modes appear on this side: *Dasein*, Consciousness in general, Spirit, and *Existenz*. In the first three we have "immanental modes", and in the fourth a "transcendental mode" (cf. *Wahrheit*, 50, 77). *Dasein*, Consciousness in general and Spirit express the *Umgreifende* so far it can be objectified, so far as we can comprehend ourselves as "adequate empirical objects of biological, psychological, sociological and historical enquiry" (*Perennial Scope of Philosophy*, 14). *Existenz*, on the other hand, is the real core of self-being. "Existenz ist der Ursprung eigentlicher Wirklichkeit, ohne die alle jene Weite and Daseinswirklichkeit verblasen wäre" (*Wahrheit*, 77). *Existenz* is the name of our essential freedom, which, though set within limits that can only be acknowledged and not overcome, is nonetheless underived.

Every mode of the *Umgreifende* encounters limits that are insuperable. The immanental modes of our own being encounter the limits set by the World; *Existenz* encounters Transcendent Being, which is that wherein and whereby we are really ourselves and are really free (*Wahrheit*, 107). Thus, although power of and for essential freedom "cannot be derived from something else" (*Perennial Scope of Philosophy*, 59), we must acknowledge the finite nature of our own being. "Wo ich

eigentlich ich selbst bin, weiss ich, dass ich mir geschenkt werde. Je entschiedener meine Freiheit mir bewusst wird, desto entschiedener zugleich auch die Transcendenz, durch die bin ich. Ich bin Existenz nur in eins mit dem Wissen um Transcendenz als um die Macht, durch die ich selbst bin." (*Wahrheit*, 110).

Is Jaspers saying here that the most important clue to the nature of reality is provided by *Existenz*, both for what it is in itself and for what it points to? Properly to apprehend *Existenz* we leave objectivated being behind, not because it is a systematic falsification; to the contrary, *Weltsein* appears in phenomena and is known in and through its phenomena, and the same holds for *Selbstsein* in its outer layers. Yet freedom is and points to Being for the apprehension of which phenomena and phenomenal abstractions such as representations, analogies, myths, etc. have only a very limited range of significance. Thus freedom, *Existenz*, cannot be thought of as providing an analogy of Transcendent Being.<sup>8</sup> At the same time it is apparent that through all objectivations of *Weltsein* and through all the immanent modes of our own being there runs a powerful thread of intentionality: all finite modes seek the Infinite, and thus all finite modes reveal their own insufficiency, their unrelievable contingency.<sup>9</sup> The crisis of the insufficiency of all modes is revealed in *Existenz*: "Die Existenz, das Umgreifende, in dem wir eigentlich wir selbst werden, hat wiederum dieselbe Gestalt des Ungenügens, aber wohin sie drängt, das ist nicht eigentlich das Zurück in die Erscheinung des Daseins, des Denkens, des Geistes, die ihr in der Zeit unumgänglich and unerlässlich sind." (*Wahrheit*, 659). Thus from existential freedom the quest for the Infinite is pressed forward: relapse into lower modes, which is to say, lower modes of intentionality, would be meaningless.

It may seem that Jaspers has translated a traditional notion of the natural hunger in all things for God, into his own ter-

<sup>8</sup> Jaspers rejects, apparently without qualification (and I am afraid it seems to me also without due consideration) the possibility of positive analogical knowledge of transcendent being. Cf. *Einführung*, 46ff.

<sup>9</sup> Cf. *Philosophie*, I, pp. 3ff., the section beginning, "Ungenügen an allem Sein, das nicht Transcendenz ist."

minology. This is very nearly the case. Although God has not yet appeared on this scene to be named as such, He is already before us as Transcendence, particularly as Transcendent Being that stands over against our own essential freedom. God is not the name of a particular being that can be described and known, for in any proper sense of the word God is "unknowable". Furthermore, no proofs for God's existence can be taken seriously for philosophical purposes, because "proofs" pertain to a level of understanding that has nothing directly to do with transcendent Being, and also because whatever can be "proved" has only a limited and relative truth.<sup>10</sup> God is Transcendent Being that I really and significantly encounter only in my freedom and in that venture in and for freedom that Jaspers calls faith.<sup>11</sup> But this is not to say that God is posited by faith in the sense of will to believe. Faith is acknowledgement of Being to which in my freedom I am bound but which does not divest me of this freedom. In Jaspers' own terms: "Die höchste Freiheit weiss sich in der Freiheit von der Welt zugleich als tiefste Gebundenheit an Transcendenz" (*Einführung in die Philosophie*, 43).

What further can be affirmed of this Being? In the end, as I shall say in somewhat greater detail below, Jaspers seems not to go beyond a *via negativa*, at least so far as speculative philosophy is concerned.<sup>12</sup> God is one, not many (cf. *Wahrheit*, 690); He is not the World (*Ibid.*) nor anything in the world absolutized; He is not personal in any easily recognizable meaning of that term; He is "known" only indirectly and that by the translation of the world of phenomena into "ciphers" or

<sup>10</sup> Cf. *Perennial Scope of Philosophy*, 90, and *Wahrheit*, *passim* under *Geltung*.

<sup>11</sup> "Der Mensch, der sich wirklich seiner Freiheit bewusst wird, wird sich zugleich Gottes gewiss. Freiheit und Gott sind untrennbar... Ich bin mir gewiss: in meiner Freiheit bin Ich nicht durch mich selbst, sondern werde mir in ihr geschenkt, denn ich kann mir ausbleiben und mein Freisein nicht erzwingen. Wo ich eigentlich ich selbst bin, bin ich gewiss, dass ich es nicht durch mich selbst bin." (*Einführung*, 43)

<sup>12</sup> Jaspers seems sometimes to grant that what we lack in terms of knowledge of God can be made up for by certain concrete activities, such as love. *Existenz* has transcendent being, he says, only in such acts, and not in myths, speculations, knowledge, etc. Cf. *Wahrheit*, 632.



symbols (*Wahrheit*, 1051). He Himself is no cipher or symbol: He is reality itself (*Ibid.*), but this reality is apprehended along no particular line. He is known only as the whole to which all things aspire as to their fulfillment (*Wahrheit*, 1053). He is the hidden God (*Verborgene Gott*) who does not speak directly, or whose "speech" is incommunicably directed toward concrete persons (*Wahrheit*, 643-44). Through all of this, then, we seem to rise no higher than a negative theology. As Jaspers puts it: "Das Wahrsein von Welt und Gott ist durch die Weise der Mitteilung nur negativ zu charakterisieren" (*Ibid.*, 644).

This "knowing" that is not-knowing cannot be supplemented and completed by the concrete religious life. The notion of communion with God in and through the 'church' appears to have no real meaning, perhaps because the church — or the cult in general — arbitrarily invests something finite with sacredness; and it also systematically absolutizes the relative and contingent, and finally, claims a "definitive possession of the truth" which has been revealed unto it (*Perennial Scope of Philosophy*, 77 ff.). The latter claim, according to Jaspers, makes "authentic communication" impossible (*Ibid.*, 77). He would not at all deny that there is truth about God and God's relations with man in religion, but this truth is imbedded in a matrix of myth upon which the religious person refuses to exert adequate critical pressure.

Is this Jaspers' last word upon the knowledge of God and the communion with God? Shall we conclude that in God we have not to do with a Being but with Being, not with a power but with power? Certainly there is much to confirm this conclusion in Jaspers' system, yet there are fugitive indications of a quite different result. One or two of these may be worth our consideration in this context.

For one thing, the acknowledgement of the possibilities of *Existenz* and the pursuit of the fulfillment involves us in a "dialogue" with the world and God (*Wahrheit*, 377ff.). Indeed, in his *Einführung in die Philosophie* Jaspers declares that the reality of the world has a "disappearing *Dasein* between God and *Existenz*" (p. 76), so that the ultimate conver-

sation is between ourselves and God, the World being the common language. If this means anything, it means that *Existenz* as freedom within limitation tells us something more about God than that He is *Ursprung* beyond these limitations. Moreover, to be bound to such a Being is not to be determined by a "necessitating cause". This Jaspers insists upon: God reveals Himself as the source and as the goal of our freedom. Perhaps his only meaning here is that possibilities are placed before us mysteriously and inexplicably, but I should think it a fair inference that "God as goal" meant "fellowship" or "communion" in and with God. And finally: the general revelation of God in and through the modes of *Umgreifende* Jaspers himself has seriously qualified in this direction, for the modes and their differentiated phenomena do not have equal revelatory power. There is a kind of scale here, consummated in and crowned by *Existenz*. About this we may ask whether the scale is our own arbitrary speculative and fanciful contrivance, or is it a fair reading of a hierarchy of *intentionality*? Jaspers appears to me to say with considerable emphasis that the latter is really the case. All other modes are immanent and all therefore point beyond themselves, they all signify something other than themselves. This is even true of *Transcendenz*, of Being-in-itself (objective Being), for the specification of mere *Transcendenz* awaits the acknowledgement of the concrete transcendent mode of freedom or *Existenz*. Thus the transcendent mode of objective being is not much more than a re-statement of the fact that 'all things mortal do plainly testify of their mortality', or, that all things naturally participate in nothingness. It is from the reality of *Existenz* that Transcendent Being becomes positively meaningful, if such it becomes at all. It is only here that the constitutive dialogue of *Existenz* with its Source can occur.

For me this remains the most perplexing question of all: does God become positively meaningful even then? Or is He left as *Wirklichkeit* mysteriously expressing itself through its modes, all of which are 'signs and symbols,' including *Existenz* itself.<sup>13</sup> But how are the symbols to be interpreted, unless sym-

<sup>13</sup> *Philosophie*, III, 190ff.

bol and reality symbolized are somehow or other positively and simultaneously embraced, and unless this embracing, this primal apprehension can be brought up out of the vagueness and mistiness of the 'merely intuitive' into conceptual clarity. This failing we are left to ponder God as *Umgreifendes des Umgreifenden*, manifesting itself in mysterious unity and fecundity.

I must profess that to be left only with the latter would be a disappointing issue from such heroic and titanic labors. It would be disappointing for two reasons, primarily, of which the first is that the system leaves itself open and ready for the pantheistic kiss of death, and the second, that nonetheless it would take relatively little to set it back on the right track.

As to the first: Jaspers' intention clearly is to avoid the confusion of God and the World. Transcendent Being is not another name for *Weltsein*. All "immanentisms" break down, he believes, at one point or another. Yet how little it would take to turn *Umgreifende* into Infinite Substance whence proceeds an infinite number of things in an eternal procession, and little matter at this juncture that substance is a category of the understanding.

In this connection I find it hard to suppose that the notion of self-differentiation of *Umgreifende* is either a terminological accident or irrelevancy. Being does not simply appear to us to behave this way; this is not simply a subjectively and arbitrarily determined standpoint from which to survey a wholly impenetrable reality. This is really the way it is. Very well, but from here we may go either towards Spinoza or Hegel on the one hand, or towards Theism on the other. Jaspers does not intend to consort with Spinoza or Hegel, because in their systems we see a mode absolutized with the consequent falsification of Being as a whole and the denial of Transcendence. Moreover, *Existenz* disappears from both systems. Hence Jaspers turns away from the specious allure of the greatest of pantheistic alternatives: Being as such, God the Transcendent, in which we live and move and have our being, is not *Deus sive Natura*, nor the Absolute eternally differentiating itself.

As to the second reason for disappointment, Jaspers does not come out for Theism, although it would take relatively

little to turn the system in that direction. This little is not forthcoming. What is lacking is, first, a clearer statement concerning the 'contingency' of all things over against God. This is not the part-whole relationship. What, then, is it? Jaspers uses the language of Creator-creature, but he insists that it is mythological language. This judgement upon such language is incomplete. Traditional Theism has not undertaken to describe Creation in pictorial, mythical terms. Creation is the name of a mystery and at the same time it expresses, or perhaps we should say, points to an absolutely unique relationship of finite to Infinite, a relationship absolutely constitutive of the finite agent while nonconstitutive of the Infinite.<sup>14</sup> Thus the notion of Creation has positive content of two orders: (1) the limited character of all things and the radical dependence of all upon Transcendent Being. Here Jaspers gives his assent. (2) the self-completeness of Transcendent Being in relation to all things 'created'. I cannot account for Jaspers' silence at this point.

In the second place, the notion of Symbol, so important for Jaspers' system, is cheated of its full significance and power by the underlying Kantian epistemological perspective, for a very large part of his thought is devoted to the creation of an ascending scale of intentionality, whereby either from its last level, i.e., freedom, or from the whole scale, certain positive affirmations concerning the divine nature could be reasonably and intelligibly formulated. But at the end, and I believe with real violence following for the system as a whole, Jaspers lumps the whole scale together in a blanket denial that any analogy yields positive knowledge of God's nature.

Thirdly, there is lacking an unequivocal position *vis-a-vis* the 'communion' of *Existenz* with God. Jaspers, as I assume is well known, makes a great deal of communication. All the modes of Being have to do with communication but for our

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<sup>14</sup> Farrer, *Finite and Infinite*, has attempted a re-statement of the theistic position here. "Divine creativity is a real connexion accounting for the existence of that system of finite substance which operates in its own finite manner... Creation is a relation which simply posits one of its terms" (p. 22).

immediate purposes his convictions concerning *Existenz* and communication have paramount importance. Let us note, then, that *Existenz* presupposes communication with *Existenz*: "Denn Existenz wird nur dann sich offenbar and damit wirklich, wenn sie mit der andern Existenz, durch sie and zugleich mit ihr, zu sich selber kommt" (*Wahrheit*, 377). And again: "Er ist er selbst und einsam zugleich doch nur, insofern er für andere ist, Selbstsein und In-Kommunikation-Sein ist untrennbar" (*Ibid.*, 546). Self-disclosure, which ultimately takes on the character of love, is thus constitutive of *Existenz*. But now our question is, in what sense does this hold for the relation of *Existenz* to God? Here we have freedom calling unto freedom, God speaking to ourselves, to elicit the creative response of faith. Is this Divine Word simply and exclusively the range of the modes of Being, each signifying what it itself is not? To leave it here is to fall back upon non-personal communication, indeed, it is to deny communication in any significant sense. How shall I interpret impersonally that with which my freedom is bound up without denying either that freedom or the reality of *Gebundenheitsein* which Jaspers everywhere so vigorously affirms? It will not do to re-assert simply my dependence upon a creaturely other: dependence here is upon the Transcendent Other who created me but who does not derive my existence from some other creature, for in respect to all other creatures I am a "new creation" (cf. *Perennial Scope of Philosophy*, 5). But if this is the case, how can Jaspers insist that we have no *personal* dealings with God, as he says so clearly in his brief discussion of prayer.<sup>15</sup> And why does he believe that the beatification of this life is the achievement of an "impersonal love of God"? (cf. *Einführung in die Philosophie*, p. 48).

Fourthly, there is Jaspers' understanding of faith, which is both profoundly suggestive and, if my presumption may be pardoned, incomplete. He sees faith as at once a primal apprehension of God and a commitment or resolution of oneself. But to what is the commitment made? Is this a response to God who makes His will known and who speaks therefore,

<sup>15</sup> *Perennial Scope of Philosophy*, 82.

'person to person', or is it simply the affirmation of my possibilities over against a world that is, happily, congenial to them, within certain limits? Certainly Jaspers means much more than the latter, but I cannot see *what* more. Even though God reveals Himself in our freedom, we seem incurably poverty-stricken when it comes to saying to what or to whom we respond in faith.

A negative theology draws its life and meaning ultimately from a positive knowledge of God, and that positive knowledge cannot itself be erected upon a structure of negations, although it should be clarified and purified by negations. So far as Jaspers allows a direct though vague awareness or apprehension of God, he admits this, but in the end he does not proceed to the delineation of the super-structure or the foundation of positive knowledge of God. So far, accordingly, as he refuses to set forth positively the nature of Being throughout the whole extent of it, his system is threatened with relapse into the "point of view" philosophizing that he clearly repudiates. For one, I should like to see this system spared that fate.

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## A THEORY OF THE MIND \*

This book has already been hailed as a most important work and this is an estimate with which I find myself bound to agree, not however without some serious qualifications. For the book is also perplexing and in many ways somewhat disappointing. I hope to make my reasons for saying this clearer in what follows but first I would like to make some general observations. Professor Ryle is one of the foremost exponents of that kind of 'linguistic analysis' which has been evolved and developed during the last two decades or so, and mainly in England. And here for almost the first time is a book in which the method is applied on a large scale and with great detail and subtlety to a major philosophical problem. It is thus a book which those in sympathy with the method employed must have waited for with high hopes and which even those sceptical about the method must turn to with interest. These then are the reasons for its importance. The dissatisfaction which I feel is in no way due to the method used; its possible fruitfulness is here amply revealed. In much of the detailed analysis there is an acuteness and penetration which demand very high praise and respect. Moreover, the book will certainly be a land mark in philosophical writing in so far as it will give rise to a renewed spate of discussion and controversy, discussion with a new orientation. But about the main bearings of the argument I am much less confident. Indeed, it seems to me that there are present from the start a number of hidden confusions which render unsatisfactory a large part of the positive doctrine put forward. Of these more later.

In Professor Ryle's words, the aim of the book is to offer "what may with reservations be described as a theory of the mind" (p. 7). But it claims to give no new information about minds but rather to "rectify the logical geography of the knowl-

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\* *The Concept of Mind*, by Gilbert Ryle. London: Hutchinson's University Library, 1949. 344 pp.

edge which we already possess" (p. 7). The need for rectification comes from a fundamental error underlying the generally accepted or official doctrine about the nature and status of Mind, a doctrine which hails chiefly from Descartes. This doctrine "is not merely an assemblage of particular mistakes. It is one big mistake and a mistake of a special kind. It is, namely, a category-mistake" (p. 16). Hence it is wrong to speak of Minds and Bodies as if they are similar kinds of things that can be coupled in the same phrase; wrong to suppose that there are mental events which are hidden and unwitnessable counterparts of bodily events; wrong to suppose that our mental activities and characters are never known to other people because private and accessible in some privileged way only to ourselves. This is the large and radical undertaking to which Professor Ryle addresses himself. After a description of the Cartesian "myth" and a statement in detail of the nature of the general error underlying it, there follows a series of attempts to grapple with particular aspects of mental life, with the aim of showing in each case why the "official" doctrine is untenable and that mental concepts must be understood in quite a different way.

I shall not follow his sketch of the genesis of the Cartesian myth. All I need say in general is that the view that is being attacked is that the mind is a kind of stage where mental events take place, that nobody can witness my mental activities and hence that nobody can know, except by the flimsiest of inferences, anything about my mental characteristics or activities; in short, that talk about mental activities and processes is talk about hidden activities and processes.

Now this theory is incompatible with the fact that we do possess and know how to acquire a wealth of detail about other people's minds, mental powers and characters. Indeed, if the theory was introduced *because* we do have this kind of knowledge and so that the mental should not be 'reduced' to the material in the manner of Hobbes and Gassendi, then the theory has slipped to the other extreme and made it incomprehensible how we should have this knowledge at all. The diagnosis of the error, however, is fairly simple. A category-mistake has

been made. It lies in representing "the facts of mental life as if they belonged to one logical type or category (or range of types or categories), when they actually belong to another" (p. 16). This kind of mistake is illustrated by the following examples. A university is just a way in which colleges, libraries, playing fields, museums, scientific departments, etc. are organized. It is incorrect to speak of these units *and* the university as if 'the university' stood for an extra member of the class of which the other units are members. A division consists of battalions, batteries and squadrons; in watching the march-past of a division we see a parade of battalions, batteries and squadrons but we cannot add "*and* a division." To come nearer the enquiry at hand, one can pick out all the members of a cricket team and learn their functions; but there is no additional member whose role is to exercise team-spirit. Team-spirit is not another cricketing activity like batting or bowling. "It is, roughly, the keenness with which each of the special tasks is performed, and performing a task keenly is not performing two tasks" (p. 17). These examples illustrate what Professor Ryle has to say about the "logical geography" of concepts concerned with mental powers and operations. Knowing how to apply and operate with such concepts in ordinary life does not entail that we know how to correlate them with one another and with concepts of other sorts; how in fact to state the logical regulations which govern their use. Concepts of different types or categories cannot be conjoined or disjoined or otherwise related in the ways concepts of the same type can be. We cannot speak of the colleges, etc., *and* the university, or the Church, the Home Office, the Cabinet *and* the British Constitution. We may jokingly say "she came home in a flood of tears and a sedan-chair" but the joke reveals the absurdity of conjoining terms of different types. In the same way, Professor Ryle holds, we cannot speak of bodily processes *and* mental processes. Mental processes are not collateral, hidden and mysterious counterparts or accompaniments of bodily processes. The use of mental concepts describes the way in which bodily processes take place. When someone is doing something with heed, it does not mean that ghostly mental processes or heedings are going on but

that he is doing what he is doing in such a way that, if asked questions about his job he will reply promptly, if something goes wrong he will immediately take steps to remedy it and so on. This thesis is maintained at different times and in different contexts throughout the book. We cannot contrast, conjoin or disjoin Mind and Matter as if they were two terms of the same logical type. Category-mistakes occur when we do not know how to wield concepts like 'university,' 'division,' 'team-spirit' and 'Mind'; they arise "from inability to use certain items in the English vocabulary" (p. 17).

Before I go further in outlining Professor Ryle's argument I will offer one or two brief comments. First, it is at least not obvious that the conjunction 'Mind and Matter' is a curiosity in the same way as 'in tears and a sedan-chair.' To say that the phrase 'Mind and Matter' is to be avoided seems to be pushing the objection too far. This conjunction is one used, not only by philosophers, but in ordinary discourse and there seems no good reason why we should not go on using it. What is important is that a category-mistake is made not when we use these phrases but when similarities of grammar lead us to ask meaningless questions or to draw mistaken inferences, questions like, "We know where his body is but where is his mind?" or "We know how lighted matches cause forest fires but how do mental events cause physical events?" We can ask what part of the sedan-chair she was in but not what part of the tears.

A more important matter is that Professor Ryle is explicitly not attempting some kind of 'reduction' of mind to matter or mental states and processes to material states and processes. "Both Idealism and Materialism are answers to an improper question." The 'reduction' presupposes "the legitimacy of the disjunction 'Either there exists minds or there exist bodies (but not both)'" (p. 22). His aim, avowedly, is to steer a course between the kind of pit that Hobbes and Gassendi dug for themselves on the one hand and the kind that Descartes fell into on the other. In spite of this, he admits to the fear that his avowals about not wishing to 'reduce' the mental to the material will not be accepted as sincere. In this regard then

it is only fair to say that in many respects he does much more justice to the many-sidedness and richness of mental life than even the idealist tradition is accustomed to do. In fact it is his aliveness to the great multiplicity of mental activities that lends his book much of its interest. He is concerned with emotions, moods, dispositions, habits, chat, social conversation, teaching and learning as well as the more hackneyed topics of philosophical disquisition like inference, argument, proof, belief and knowledge. Even within the more narrowly intellectual realm he introduces many kinds of activity which have been paid scant attention by most philosophers, like adding and multiplying, chess-playing and bridge. It would be strange therefore, in view of all this, if he should straightway and open-eyed commit the error he is trying to avoid. Even so, as I shall suggest, certain confusions underlying his whole argument seem to me to lead him into a position which, if not reductionist, at least does less than justice in some respects to mental phenomena (see, for example, his sympathetic comments on Behaviourism in the concluding chapter).

It is a mistake then to think that the mind is a place, even a ghostly and mysterious place. But the diagnosis of why philosophers should postulate it takes us much further afield. Professor Ryle suggests that the dichotomy of mind and body is the result of a supposed need of somewhere where hidden mental events can take place. The ghostly stage is invented to house the ghostly actors. But if it can be shown that there are no ghostly actors, no in principle hidden events, then no strange region is required to accommodate them. The main task of the rest of the book is therefore an analysis in turn of each aspect of mental life to show that mental verbs and adjectives mislead us if they lead us to believe that there are hidden and mysterious activities.

One main line of attack on hidden mental operations consists in showing that a great number of mental verbs and mental-attribute words which are erroneously taken to refer to hidden processes and episodes really refer, not to processes and episodes at all, but to dispositions such as abilities, liabilities

and tendencies. Roughly, we make a category-mistake or get our mental geography wrong when, in using sentences including verbs like 'know' or adjectives like 'intelligent,' we think we are talking about mental events. The detailed argument, however, is very elaborate. Being intelligent, clever, careful, logical and so on is having abilities. Moreover these abilities are forms of 'knowing how,' not of 'knowing that.' When someone is intelligent, logical or careful in his conduct he is not piloting his conduct by an intellectual grasp of true propositions or by an internal recitation of maxims. The legend that all intelligent activity is intelligent because guided by knowledge that such and such is the case runs into absurdity; for applying knowledge of principles and maxims is itself something which can be done intelligently or stupidly. "Efficient practice precedes the theory of it" (p. 30). Knowledge is not intelligence nor is ignorance stupidity as the intellectualist tradition maintains. The positive account of doing something intelligently is that it is doing it in a certain manner, not doing it as the result of bits of maxim-consulting. These pieces of silent theorizing said to precede and guide all intelligent activity do not succeed in explaining why people act intelligently. When we ascribe intelligence-attributes to people we merely consider how they perform and we would not withdraw our description on learning that no silent consultation of maxims took place.

The points made here are in themselves excellent. Yet nothing here proves that there are *no* private mental activities at all. The question is then whether Professor Ryle thinks his arguments have proved this. But this is a question that it is not so easy to answer. I think that here we begin to detect an uncertainty of aim in the book and one which becomes apparent in the treatment of most of the topics that are taken up and discussed. Indeed one might almost say that two general aims are being followed and two bodies of doctrine put forward. On the one hand we have the radical programme which is announced at the outset and which I have already mentioned. It is that there are no such things as private mental occurrences. Time and again we come across statements like the following.



"The mind is not the topic of sets of untestable categorical propositions, but the topic of sets of *testable* hypothetical and semi-hypothetical propositions" (italics mine). These and the remarks on behaviorism suggest strongly the doctrine that *any* meaningful statements about mental processes are either statements about overt and witnessable acts or else are disposition-statements; *none* of them refers to *private* activities. This is a doctrine which Professor Ryle seems at times concerned to establish. On the other hand, the lesser claim of the book is that *some*, though not *all*, of the statements which we suppose to refer to private mental activities are misleading. In this less sweeping claim lies, I think, the main positive value of the book. The analysis of dispositions which I am still engaged in discussing is a typical instance. Much that is worth while and original is said about dispositions but the treatment does not in my view support the wider aim. Indeed, when Professor Ryle is in his more conservative mood he not only admits that there are silent and private activities; he even says a good deal that is positive about them. "Much of our ordinary thinking is conducted in internal monologue or silent soliloquy, usually accompanied by an internal cinematograph-show of visual imagery" (p. 27). Again, the chapter on Imagination, for example, has a great deal to say about fancying, seeing in the mind's eye, etc. And the following quotations imply that many of our mental performances are conducted privately or in secret. "The combination of the two assumptions that theorising is the primary activity of minds and that theorising is intrinsically a private, silent or internal operation remains one of the main supports of the dogma of the ghost in the machine. People tend to identify their minds with the 'place' where they conduct their secret thoughts. They even come to suppose that there is a special mystery about how we publish our thoughts instead of realising that we employ a special artifice to keep them to ourselves" (p. 27). "In describing the workings of a person's mind we are not describing a second set of shadowy operations . . . we are describing the ways in which parts of his conduct are managed . . . It makes no difference in theory if the performances we are appraising are operations executed

silently in the agent's head . . . Of course it makes a lot of difference in practice, for the examiner cannot award marks to operations which the candidate successfully keeps to himself" (p. 50).

The questions we need to ask then are whether the analysis of dispositions is used by Professor Ryle as a prop for his wider aims, whether if so it is successful, and if unsuccessful what are the confusions which lead to its being thought plausible. Now it seems that he does think it supports his argument. If someone acts overtly in all ways and on all or most occasions as *if* intelligent, this is sufficient for us to say that he is intelligent. No consideration of private mental processes of his, even if it were possible, would make us withdraw our description. It is ridiculous to say he always acts intelligently yet really he is stupid. In this way, therefore, scrutiny of internal states has nothing to do with the application of 'intelligent.' Therefore, argues Professor Ryle, performing intelligently is doing one thing, not two. It is performing overtly, not privately as well. Since we can sum up people's characters and abilities perfectly well without appeal to unwitnessable events the postulation of inner events is a useless and unnecessary bit of lumber.

What the analysis of disposition-statements tells us is that saying someone is intelligent is saying that if he performs acts they will be performed in a certain manner. It is not to say that the acts performed are guided by other hidden intellectual shadow-operations. But although this argument is good, far from showing that there are no private activities, it applies equally to public *and* private intelligent performances. "He is intelligent" means that if he performs overt acts, they will be done in a certain manner but also that if he performs silently this too will be done in a certain manner. The dictum "doing one thing, not two" holds in both cases. But I have still to show what confusions lead to the ignoring or at least the de-emphasizing of private mental processes because they seem to me important ones.

The examination of the logic of dispositional statements that Professor Ryle makes is a fairly elaborate one. He shows

for example that dispositional statements, i.e., statements to the effect that someone or something has a certain capacity, tendency, propensity or liability, are somewhat like laws in being partly 'variable' or 'open'; "to say that this sleeper knows French, is to say that if, for example, he is ever addressed in French, or shown any French newspaper, he responds pertinently in French, acts appropriately or translates it correctly into his own tongue," etc. (p. 123). Yet they are unlike laws in that they mention particular things or persons. "Dispositional statements are neither reports of observed or observable states of affairs, nor yet reports of unobserved or unobservable states of affairs. They narrate no incidents. But their jobs are intimately connected with narratives of incidents, for, if they are true, they are satisfied by narrated incidents" (p. 125). The elucidation therefore of dispositional statements is one in terms of hypothetical statements.

I have already hinted at a wavering in Professor Ryle's treatment. And I have shown that the arguments brought forward do not seem on the face of it to disprove private activities. Yet Professor Ryle seems to use them in this way: i.e., he inclines to say that disposition statements are not only hypotheticals about possible acts (which is true) but about (at least predominantly) *overt* acts. Why then this emphasis on the overt? What has happened is that the questions 'what are minds?' and 'what is the analysis of mental concepts?' have been confused with the questions 'how do we know that there are other minds?' and 'what sorts of criteria do we need for asserting that there are other minds?' It is true that when we are concerned with *other people* we have only their *overt* performances (including of course their admissions and conversation) available as criteria for the application of intelligence-attributes. But it is one thing to say that 'he is intelligent' means that if placed in certain circumstances he will conduct his behaviour in a certain manner and quite another to say that we can only *know* that he is intelligent if he conducts *overt* behaviour in a certain manner. It is an easy but mistaken step to say 'intelligent' means 'able or likely to conduct overt

behaviour in a certain manner' and that we need not concern ourselves at all with alleged private performances.

This confusion is made more plausible still by another consideration which seems to suggest that we have no use for private processes and episodes. Professor Ryle is particularly alive to the fact that we do know and have ways of finding out a very great deal about other people's mental abilities and performances. Moreover, it cannot be denied that everything we do know about their mental aptitudes is acquired by observing their behaviour and by paying attention to that very important aspect of their behaviour, namely, their avowals, admissions, autobiographies and diaries. The argument is particularly clear when moods and emotions are being dealt with. So long as a man behaves in a certain way, e.g., as if in a certain mood, and so long as his behaviour is not feigned, we are justified, and indeed have all the justification we need or could require for saying that he is genuinely in that mood, irrespective of whether there have been private events, feelings for instance, of some particular kind. If on the other hand when we attribute a certain mental characteristic to someone we are asserting the occurrence of a hidden event or events, it would turn out that we never knew anything with more than a negligible degree of probability about other people. We would not cease to describe a man as patriotic if we discovered that he never had certain special sensations, feelings, pangs or twinges so long as on all occasions he continued to act and talk (and, we might add, imagine and soliloquize) in a certain way. It would be stupid to say of someone who gave all indications in his behaviour and talk of being imaginative that *really* he was unimaginative, or of someone who always solved difficult problems correctly and could answer questions about his method of solution that *really* he was neither alert nor intelligent. This is the sort of thing that no scrutiny, *per impossibile*, of internal events would support.

Yet even so Professor Ryle's argument goes too far. He is so keen to do justice to our knowledge of other people that he not only stresses the overt at the expense of the private; he also claims that we acquire knowledge about *ourselves* in just the

same way and that we have no important special access to our own characters. Now while it is true that sometimes our readings of our own characters are biased and untrustworthy and that other people sometimes form a truer estimate of us, it is still not true that we have no special access to our own mental life. His contention is both right in part and wrong in part. He is right in saying that, with dispositional attributes, if the appropriate behaviour occurs, we are justified in applying the adjective or description. No inference (and hence no unreliable inference) is required. The aptitude for the behaviour is what is being asserted, not merely the *evidence* for what is being asserted. But what is being asserted is not only aptitude for *overt* behaviour. For while it is absurd to wonder whether someone who acts and talks intelligently is really stupid, it is not absurd to wonder whether someone who acts and talks stupidly is really intelligent. Professor Ryle says — and it is true — that a person would not be intelligent if *none* of his behaviour ever was intelligent; but it is possible that inner communings might be intelligent and public performances stupid because of shyness or stage-fright. Similarly we can wonder whether someone's conduct is the result of patriotism or cowardice and be forced to make not always conclusive inferences. The person himself, however, may know that it is cowardice, not patriotism, because he knows what his private behaviour (soliloquizing, day-dreaming and planning) is like. None of this undermines the contention that we find out a great deal about our own mental characteristics, not by any special *method* of investigation, but by observing how we behave. The man who feels bursts of patriotic fervour but who always avoids troublesome national tasks learns more about himself by reviewing his conduct than by paying attention to his feelings. It happens however that we have an additional *source* of information which is hidden from other people and is at times crucially important.

Before I go on to the second main line of attack on private mental activities I must mention the admirable treatment of dispositional and modal statements. First is the distinction between highly specific or determinate dispositional words on the one hand and highly generic or determinable dispositional

words on the other hand. Whereas there is only one sort of behaviour expected of animals which are ruminant and only one verb 'ruminates,' there are several different reactions expected from anything elastic. There is no one verb corresponding to 'elastic'; nor is there one kind of act corresponding to determinable dispositions like knowing, believing, aspiring, being humorous. There are other noteworthy differences. Dispositional statements state many kinds of things, usually marked by the occurrence of different modal words like 'can,' 'must,' 'may' and 'is necessarily.' Take for example the different ways in which 'can' is used. "'Stones can float (for pumicestone floats)'; 'that fish can swim (for it is not disabled, although it is now inert in the mud)'; 'John Doe can swim (for he has learned and not forgotten)'; 'Richard Roe can swim (if he is willing to learn)'; 'you can swim (when you try hard)'; 'she can swim (for the doctor has withdrawn his veto)' and so on." And notice how tendencies differ from capacities and liabilities. "'Would if . . . ' differs from 'could'; and 'regularly does . . . when . . . ' differs from 'can.' Roughly, to say 'can' is to say that it is not a certainty that something will not be the case, while, to say 'tends,' 'keeps on' or 'is prone,' is to say that it is a good bet that it will be, or was, the case. So 'tends to' implies 'can,' but is not implied by it. 'Fido tends to howl when the moon shines' says more than 'it is not true that if the moon shines, Fido is silent.' It licenses the hearer not only not to rely on his silence, but positively to expect barking" (p. 131). It is in pieces of detailed work like these, which, unfortunately, there is no chance of more than mentioning here, that much of the great positive interest and value of the book lies.

I return now to following out the general bearing of the book. A second main line of attack is directed against 'philosophers' verbs.' "We hear stories of people doing such things as judging, abstracting, subsuming, deducing, inducing, predicating and so forth, as if these were recordable operations actually executed by particular people at particular stages of their ponderings. And, since we do not witness other people in the act of doing these things, or even catch ourselves in the



act of doing them we feel driven to allow that these acts are very subterranean happenings, the occurrences of which are found out only by the inferences and divinations of expert epistemologists. These experts seem to tell us that we do these things somewhat as anatomists tell us of the digestive and cerebral processes that go on inside us without our knowledge. So our intellects must be fleshless organs, since these para-anatomists find out so much about their clandestine functionings" (p. 285). What does go on when I am thinking or theorising is a lot of soliloquy and colloquy, calculating and miscalculating and experimental asseverating. These are episodes in my biography. But the philosophers' pet activities are postulated activities. We cannot witness them, not because they take place behind locked doors, but because they do not take place at all. "The imputed episodes seemed to be impenetrably 'internal' because they were genuinely unwitnessable. But they were genuinely unwitnessable because they were mythical. They were causal hypotheses substituted for functional descriptions of the elements of published theories" (p. 318). The genuine use of these verbs is not to refer to activities but to refer to the results or products of activities. We run over premises in our head or aloud and we announce conclusions tentatively or triumphantly; but no observable link called a process of inferring runs between the two. If these verbs lead us to suppose there really are such activities they are seriously misleading.

Two main sources of error have been removed. But there still remains an important task. Philosophers' verbs have been dealt with but not ordinary verbs like 'see,' 'hear,' 'feel pain,' 'imagine,' 'comprehend' and 'recollect.' Dispositions of all kinds have been treated at length, but dispositions manifest themselves in occurrences and, as I have suggested, not always in public ones. The analysis of the ordinary verbs which refer to these occurrences must therefore follow.

A number of weapons are brought to bear here. I will examine some of them briefly. The argument that there are privately observable events called sensations, like pains and

twinges, and that these are not observable by other people is met by an appeal to the correct use of the word 'observe.' It is true that another person cannot observe my sensations but no more can I. The word 'observe' is incorrectly used in this context. Things that can be observed are things that can be looked or searched for, peered at or scrutinized carelessly or with care, lost from observation because of hindrances or bad conditions and made clearer by the use of instruments. Hence sensations are not the kinds of things that can be observed at all; they are not events and a *fortiori* are not private or hidden events. Then take alleged mental processes like seeing and hearing. Are these genuine processes or not? Here Professor Ryle draws an important distinction between process-verbs and achievement-verbs. 'Run,' 'search,' 'look for,' 'fight,' 'angle,' etc. are process-verbs; 'win,' 'find,' 'discover,' 'conquer,' 'catch,' etc. are achievement-verbs. It makes sense to ask of an event how long it lasted, whether it was successful, if it was done with or without care and a host of other kinds of questions which are not applicable to achievements. Seeing, hearing and the rest, unlike seeking and listening, are achievements, not processes, and therefore are not hidden or private processes. One error into which philosophers have fallen as a result of not making this distinction is to suppose that there are some cognitive processes that are infallible. But we now see that it is merely a logical, not a factual, impossibility for anyone to win, discover, see or solve unsuccessfully.

It is not to be disputed that there is much subtle and valuable material here. Yet even so I am far from convinced that the attack on private mental events — if it was intended — has been driven home. For example, on Professor Ryle's admission, there are pains and twinges and even though we do not *observe* them, we do *have* them. It would seem that the wider aim of the book would require not only these but silent deliberation and calculation, silent imagining and recollecting to be proved equally mythical. Let us review the possible reasons for attempting an analysis of ordinary statements about mental acts into statements about frames of mind or disposi-

tions, which is what Professor Ryle's approach seems to require.

First the original category-mistake. There is no doubt that there is a mistake, and one of the kind described, in alleging that the mind is a kind of secret place or ghostly theatre. And no doubt it is a mistaken inference to argue "if there are mental events, they must take place somewhere." But this argument does not prove that there are no private mental events. Professor Ryle himself is clearly aware that it is foolish to ask the same questions about everything. On his showing, for instance, we cannot ask, when told that someone found the treasure or won the race, whether he was successful. Similarly, I would say, while we can ask where a race took place, we cannot ask in the same sense where silent soliloquies or imaginings take place. Indeed, if the only reason for introducing the notion of a category-mistake were to prove that the mind is not a place or a thing and that certain questions cannot meaningfully be asked about it, it might seem effort expended in vain. We are in little danger of interpreting 'in the mind' in the way we interpret 'in the body'; we do not usually slip into drawing the mistaken inferences.

Secondly, there may be something important in showing that, if we use the words 'event,' 'process,' 'occurrence' in the expressions 'mental events,' 'mental processes' and 'mental occurrences,' we are not using them in the same way as in the expressions 'physical events,' etc. We must beware of being misled by making a category-mistake. 'Events' is usually used so as to entail that the events are observable, etc. Similarly, saying that a pain occurred must not mislead us into supposing that 'observation-verbs' are applicable to pains. Yet Professor Ryle seems to be taking the use of 'event' and 'occurrence' as in the phrase 'physical event' and 'physical occurrence' as a special or standard or privileged use. But there is no good reason for this. Our everyday usage is satisfactory so long as we do not go on to draw the wrong inferences. But this does not mean that, in a perfectly good sense, there are no private events.

If then the main line of treatment of statements about private events consists in showing that they are really dispositional or hypothetical statements about overt events I must try to show that it is mistaken and untenable. When someone describes himself as, at a certain time, imagining a horse galloping, and acts thereafter in any appropriate ways, and we have no reason to suppose that he is either acting or lying, it is pointless to ask whether he was *really* imagining a horse galloping, or to suggest that what he calls imagining would be what I, if permitted some peculiar scrutiny of his mental processes, would call recollecting or considering, and that what he calls a horse galloping is what I would call a cow jumping over the moon. It is like the question about whether I call red what you call green. We can only tell whether and what a man has imagined, recollected, planned or said to himself by his behaviour and his remarks. But this is not to say that no private mental occurrences take place; it is only to say that, when dealing with other people, we need concern ourselves only with their behaviour and talk. To put it another way, there is no good reason for saying that statements about mental occurrences are really hypothetical, not categorical. There may, however, be good reasons for saying that a categorical statement about someone else's mental activities can be made by me only if I know that certain hypothetical statements are true. Here again then is the same confusion between *what is asserted* and *how we know* that we saw when dealing with dispositions.

If statements like 'he is imagining now' are hypothetical statements about overt activities, it would seem that when I am silently imagining, recollecting or thinking through a problem, events the occurrence of which I for one am sure, nothing would in fact be happening. All that would be true is that I would be in a certain 'frame of mind': i.e., certain hypothetical statements about me would be true. Apparently it would not make sense to ask how long I was working out a problem or how long it took me to recite to myself a passage from Milton; for surely questions of the form 'how long did it take?' are not applicable to dispositions or frames of mind. Or put it another

way. 'He is intelligent' entails and is entailed by 'he can carry out certain performances (such as, e.g., calculating aloud or silently)' and this is a hypothetical statement. It would be logically impossible to be intelligent yet unable to perform in certain determinable ways and vice versa. But although we suppose it true that if anyone sees an obstacle he can describe it, avoid it, etc., it is not *logically* impossible that he should describe it, avoid it and so forth and yet not have seen it. Of course we would regard such a happening as a freak occurrence and in fact we would take his avoidance as, in normal circumstances, sufficient evidence for his having seen it. But even so, his avoiding and describing etc. would not constitute what we *mean* by his having seen it. We might say 'if he can do all this he *must* have seen the obstacle,' but this 'must' is a causal not a logical 'must.' Similarly if someone could give the *results* of difficult problems there would be no contradiction in saying he had done no calculating. We have good reasons to believe that whenever categorical statements like 'he is calculating' or 'he is hearing' are true, certain hypothetical statements are also true. Indeed we always assert the categorical statements (when talking of other people) as a result of discovering the truth of the hypothetical statements about overt behaviour. The hypotheticals, however, can be true while the categorical statements are false. But with *disposition* statements like 'he is intelligent,' the truth of the hypothetical statements about what he can perform entails the truth of the statement 'he is intelligent.'

My opinion then is that the case against private occurrences is not proved. So far I have concentrated upon this question of privacy because this is where Professor Ryle's emphasis falls. But we would like a fuller discussion of what it means to say that an activity is 'conscious,' for this is an adjective that can apply to *overt* as well as private performances. Professor Ryle mentions various uses of 'conscious' but it seems that he dismisses too casually the use I have in mind. We want to claim that there is a difference between the 'seeing' and 'hearing' that certain kinds of robots do and the seeing

and hearing men and animals do. We would naturally say here that in one case a conscious experience occurred and in the other no experience at all. When people work on problems, add, subtract and multiply they are performing conscious activities and idioms like "suddenly saw the solution" etc., are appropriate; but not so with machines. Electronic brains 'remember,' 'notice' errors in calculation and rectify them, but do not remember or notice. Another rather different set of questions relate to understanding; we want to know what the difference is between a man voicing or hearing words and *understanding* them and a parrot merely voicing or hearing them.

The trend of the book offers the following approach to this issue. Saying that a man understands what he says while a parrot does not is saying that he is emitting words (just as the parrot is) and that he is able and liable to conduct certain behaviour which the parrot cannot conduct. Such a statement which has a categorical and a hypothetical import is called by Professor Ryle a "mongrel-categorical." Thus, so far as I understand the theory, saying that anything has a conscious experience is taken to mean that it has dispositions to overt behaviour of a special kind; it learns, it can reply to questions and so forth, things which are never as a matter of fact true about machines and parrots.

Now this is certainly one of our main criteria for asserting that something has a mind or performs conscious activities. But though, as a *matter of fact*, parrots and machines do not exhibit the kind of behaviour men do, i.e., parrots do not indulge in literary talk and electronic brains do not decide which problems they need to solve and why, even so it does not seem true that to call an act 'conscious' is merely to say that it is produced by a creature whose other overt arts fall into a certain pattern. There is no *logical* impossibility in there being a parrot or a machine which exhibited all the required patterns of overt behaviour: i.e., acted as if it learned, emitted word-sounds in conversational patterns, but none of whose acts were conscious. Of course, if we came across such a parrot we would have to say, *if* these are our criteria for having a mind, that the



parrot had a mind. But having a mind or being capable of *conscious* activities does not *consist* in being able to perform certain patterns of *overt* behaviour; acting this way is simply a *result* of having a mind. We can put the difficulty another way. There is an essential difference between how I know about my own mental (conscious) activities and how I know about other people's. It may well be true, as we saw, that I know about my mental dispositions and abilities largely by observation of what I do or fail to do. But I do not find out that I see, remember, talk with understanding, etc. (as opposed to 'see,' 'remember' and 'talk') by the same methods as I find out that other people are conscious. If so, I could only find out that my acts were conscious by noticing the kinds of patterns of behaviour I performed. Surely this contains an absurdity. This analysis of 'conscious' experience in terms of mongrel-categoricals will not do.

Professor Ryle has a great deal to tell us about the concept of mind, but I think the confusions I have drawn attention to lead him to claim too much and land him in a form of behaviourism which might have been avoided. Even so the book is interesting even in what seem to me its errors.

I have concentrated upon setting out the main directions of the book at the expense of discussing particular topics. But every chapter is provocative in some way and worth careful consideration. Apart from the examination of dispositions which I have mentioned, the chapters on Emotion, Self-Knowledge (especially in the remarks on consciousness and introspection and the "systematic elusiveness of 'I'") and the Intellect are exceptionally good. What is said about the Will, Sensation and Imagination (note the view that "imaging occurs, but images are not seen") is in my opinion more open to question though worthy of close attention. A great many things are proved and many false idols demolished even if the general conclusions are not acceptable.

Not one of the least merits is the way the book is written. It is eminently readable, with a forceful and muscular style, and entirely devoid of jargon. In its subject-matter, arguments

and approach it is stimulating. It is full of pithy and pregnant sayings which one can return to again and again with no little advantage, and it is widely illustrated with examples drawn from all spheres of mental life. Perhaps it owes some of its force and some of its at times exasperating quality to its polemical tone; for, as Professor Ryle admits, he is attacking assumptions of which he himself has been a victim. But at all events the good things to be found by the way are legion. It is a safe claim that future attempts to construct an adequate theory of the mind will need to reckon seriously with this book and draw upon it heavily.

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## SYMBOL AND METAPHOR<sup>1</sup>

The knowledge imposes a pattern and falsifies,  
For the pattern is new in every moment.

— East Coker

It seems, as one becomes older,  
That the past has another pattern, and ceases to be a  
mere sequence —  
Or even development.

— The Dry Salvages

Mr. Foss's *Symbol and Metaphor in Human Experience* is a somewhat romantic hyper-development of the distinction between the literal and the metaphoric which is today a normal preoccupation with philosophers of literature and of symbolic form. *Symbol*, it may be well to explain at once, does not in Mr. Foss's usage enjoy its usual literary and honorific alliance with *metaphor*, but, carrying rather a logical connotation, means what for Mr. Foss is the opposite of metaphor, the conceptual.<sup>2</sup> This much understood, one may go on to say

<sup>1</sup> Martin Foss, *Symbol and Metaphor in Human Experience*, Princeton University Press, 1949. pp. 205. \$3.00.

<sup>2</sup> A recent book which closely resembles Mr. Foss's in direction, Mr. Richard Hertz's *Chance and Symbol* (The University of Chicago Press, 1948), puts the term *symbol* on the same vocabulary team with *metaphor* and with such terms as "process," "value," "synthesis" — their opponents being such terms as "number," "chance," "neutrality," "analysis." One of the differences between these two books — and a difference which helps to account for the fact that I here undertake to speak about one rather than the other — is that Mr. Hertz writes in a style which I should call the momentarily facetious ("Columbus chanced, like the proverbial one-eyed hen, upon the corn later called 'America'" — p. 40), whereas Mr. Foss employs a kind of Tacitean metaphysical eloquence which, despite its difficulties, is always decorous and close to his business. Another recent book of a similar tenor is Mr. Albert Cook's *The Dark Voyage and the Golden Mean. A Philosophy of Comedy* (Harvard University Press, 1949). Mr. Cook posits the Wonderful and the Probable and under these pregnant heads tabulates numerous "facetes" or mutually dependent "antinomies" such as Individual-Social, Imagination-Reason, Ethics-Manners, Failure-Success, Aristocrat-Bourgeois, — in two words, Tragedy-Comedy. And of course, in two other words, Symbol-Concept — "Symbol" here meaning (as with Mr. Hertz) *metaphor* in Mr. Foss's terminology, and "Concept" meaning *symbol*.

that the main difference between Mr. Foss and other writers on the same theme lies in the thoroughness and ingenuity with which he has worked out his central distinction and in the intensity of his evaluations, the fullness of worth which he has assigned to metaphor and the corresponding meagerness which is left for the concept. Or, to put the matter more briefly, metaphor for Mr. Foss is not only a problem of language but the throbbing heart of all knowledge and reality. The first rule for reading Mr. Foss is that *symbol*, in all contexts and relations, be taken as what is limited, reduced, and false, and that *metaphor*, on the other hand, be taken as what is ideally directed and true.

Let me attempt a drastic summary, or symbolic reduction, of Mr. Foss's adeptly metaphorical exposition. The use of the copula *is*, implicit in the appositive series, will do some violence to the complexity of the argument, but since causes and parts are frowned on by the same argument, the simpler arrangement (if its possibilities of metaphoric interpretation are kept in mind) cannot be altogether out of keeping. In logical and grammatical terms, we have on two sides of a profound ledger: "symbolic reduction," the divisive subject and predicate, — and "metaphoric process," the underlying and unifying energy of the proposition, the *subjectum*. The negations of dialectic operate to show the insufficiency of symbolic concepts and are the "door to philosophic truth." And in ontological terms, we have on the one hand number, time, space, cause and effect, coincidence and contingency; and on the other the different, the naught, the apeiron, the potential, the tension of process (and of doubt), freedom and necessity in metaphoric lawful unity. There are two closely similar extremes of reduction between which one locates the transcendent philosophy of metaphor: that of sensationalism, the philosophy of the brute and atomic, and that of rationalism, the philosophy of expedient action. And in more or less theological terms, we have on the one hand the environment and its complement the ego, purposive and possessive; on the other, World, the I (a free potential) and the Thou (its realization), prayer, sin and grace in the metaphorical unity of consciousness, the widening power of personality in intercession or metaphorical representation.

On the one hand, birth and death, past and future, and a present extending *ad libitum* into either; on the other, the eternal present of the integrated process stretching over past and future, expressed in its purest form in art. And so in aesthetic terms: on the one hand catharsis, a rationalized mixture of the ego's pleasure and pain, asceticism and hedonism, play; on the other, drama — especially tragedy, which *par excellence* action — Eudaimonia, purification, artistic distance, stylization, imagination, conscience, love. On the one hand, comedy in the sense of farce, environment symbolically reduced, actions and persons according to type, the mechanism of means and ends, rules, rituals, tricks, chance, the caricature of symbolic fixation — producing laughter; on the other hand, true and great comedy, the attempt to understand life in all its contradictions, producing the smile.

If for the sake of getting on we may omit certain parallel oppositions under the heads of music, fine arts, law and ethics — and indeed almost unlimited niceties of extension under the heads already named — we may say in short that we have a monism of the expressive process. "Existence reveals the metaphorical truth that Being is Becoming... This paradoxical unity of Becoming and Being, of movement and rest is the Heraclitean Logos, and it is Life" (p. 67).

The passage just quoted I should take to be the central statement of the book. If the foregoing synopsis seems too dense a galaxy of bright terms, I plead justification from the highly compressed yet synthetically ambitious character of Mr. Foss's argument. One can only admire the consistency with which he explores the fields of human experience and his agility and thoroughness in lining up all the details his own way. At the same time I suspect that almost any critical reader — and not merely so invincible a realist and dualist as I confess myself to be — will be caught wondering what criteria could be invoked to test the numerous equations of the system. The voracity of the polar concepts, their capacity to assimilate into order the wild rattle-taggle of our usual pluralistic thought, is something indeed frightening.

Perhaps the key to Mr. Foss's method and the point where it will be scrutinized most closely by the logician is the ingenuity

with which, taking as a start two recognizable opposites, metaphoric process and symbolic fixation, he manages to shuffle so great a multitude of intermediates or disparates in one or the other direction, or to confer on certain of these intermediates a kind of two-directional or "hybrid" character. Aristotelian "entelechy" and modern "force", for instance, are symbolic reductions which seem to receive a friendly pat for a certain striving in the right direction. The "universal" is a fixation with a tendency of expansion. "Reflection" too is a very good conceptual beginning of transcendence. "We reflect and compare in order to enter by free reflection, comparison, and simultaneity of coincidence, into a sphere of necessity" (p. 51). Comedy, as we have seen, is in its most characteristic farcical forms, on the bad side; but then there is "truly great comedy," which is not funny, but humorous, and tries to understand life in its contradictions. Measure arises from the mechanical and orgiastic element of beat — but measure mediates toward the transcendence of rhythm. A certain group of hierarchical abstract terms — e.g. "personality", "stylization", "expression", "process", "subjectum", "transcendence" — tend to assume rather indeterminate relations to one another — any one revealing another, for instance, or being its essence.

Let me add to these querulous hints an expression of radical discomfiture at Mr. Foss's systematic depression of the concept. It is true that Mr. Foss is again and again at pains to assert a very qualified tolerance in that direction. It is clear that in some sense symbolic reductions are needed in his system — of course for the negations of dialectic (What else could dialectic negate?) — and even too for the creative drive of the metaphoric process.

Force cannot even be conceived without resistance, nor substance without matter, nor the metaphorical process without the symbolic reductions which have to be exact, fixed, detached in order to be transcended and overcome in the process which carries them beyond. (p. 42)

If he [the philosopher] . . . does not at all consider the symbolic order, he becomes vague and loses the ground under his feet. (p. 43)

It is wrong to seek this life by eliminating all symbols and by plunging into the darkness of nothingness as some mystics have tried to do. The simple is not the exclusion of the complex, it is the overcoming of complexity. (p. 62)



We need a system of symbols, . . . this system is a ground on which we stand and has therefore to be regarded as a highly valuable treasure, but . . . its true meaning lies beyond its own fixation. (p. 102)

Science without philosophy would stagnate and hypostatize its symbolic reduction and limitation, and philosophy without the symbolic structure of fixed and finite answers would lose the incentive to ever newly formulate its problems. (p. 105)

Or, as one might say, trying to construct an image or metaphor for all this: our concepts or symbols seem to be small platforms of fixation from which we send out continual streams into the sea of process, into which in turn our platforms themselves are continually swallowed. But I have a trouble with this imagery. Whence come the streams when the platforms are dissolved, whence any new platforms, or whence the originals? In symbolic reduction what is reduced? Or change the metaphor: say that Mr. Foss's philosophy is a celebration of the bonfire to the ultimate negation of the fuel. The peacock flames of imagination leap up and up forever, the driftwood logs fall back and vanish. But I would shift the area of magic in this image by positing a fuel that is perpetually renewed — and perpetually the same. The fun is no doubt in the flames, the inexhaustibly varied metaphoric process. But the source is something that remains and produces. Beyond the limitless realm of metaphoric relationship and sustaining it, beyond Becoming and dynamically manifest in Becoming — Beings. (The plural denotes the concrete.) And of these, for sanity, at least three: myself as a limited being, the external world (or merely environment as Mr. Foss would insist), and God. It is largely because this is so that we can read Homer in 1950. The opposite view enters the boundless gas. It dismisses, or at least replaces, what has been the perennial philosophic struggle, to salvage from the indefinite both epistemology and ontology by the assertion of Being.

At the literary and linguistic level, Mr. Foss has numerous companions in the school of symbol and myth which derives triumphantly today from the anthropology of the Golden Bough and from the semantics of symbolic form established by Cassirer. This is not to say that these are in every respect close companions. For example, as Mr. Foss makes the primitive fixation of ritual a reduction from myth, he is bidding for

contempt from the confident school of ritual origins<sup>3</sup>, (where the myth of American Independence might be derived from firecrackers on the Fourth of July).

Yet the theorist of literature is likely to say on the whole that Mr. Foss is right. That is, his philosophy of metaphor (so far as it will permit us to take metaphor as a way of expression and knowing rather than a process of being) is a literary philosophy, and it is as such, that is, as something different from a philosophy of science, religion, or ethics, that I should choose to canvass it. Mr. Foss gives eloquent utterance to the notion of poetry as organic imagination which prevails today in the post-symbolist world of letters. Imagination, let us agree approximately with Mr. Foss, is "intensive reality," "the discovery of the infinite metaphorical present in the fragmentary symbols of transitional things and events." Words — especially words in poems — exhibit "ambiguous radiation," "manifold refraction." Art is neither merely subjective, nor merely objective. Expressiveness asks for stylization and surpasses mere imitation of natural proportions. A work of art is recognized by the necessity of its inner form — the uniqueness of its rhythm. These views are nearly normal today, though perhaps not always uttered in a way which testifies to so profound a realization as here.

The limitations of this view as it is entertained by Mr. Foss are entailed by his more fundamental monism of the metaphoric process, though paradoxically they may be manifest only as the argument approaches a judgment upon particular works of art or schools. This happens in the present book chiefly apropos of the two main kinds of literature which are considered, tragedy and comedy. On Mr. Foss's premises, not only does Aristotle's causal account of tragedy become inarticulate when it encounters the irregularity of the *peripeteia*, but the modern tragedy of subject (the blurring of fantasy and environment) is rated as decidedly an improvement over the Greek contest with external fate. It is not clear what Mr. Foss actually thinks of the irony and reversal in the career of Oedi-

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<sup>3</sup> Cf. Stanley Hyman, "Myth, Ritual, and Nonsense," *Kenyon Review*, XI (Summer, 1949), 455-475. Nonsense for Mr. Hyman is the euhemeristic view.

pus. But one may suppose these cannot make much sense to an expansive philosophy in which the "ethics of service" leaves no room for the ethics of acceptance, and in which, despite vaguely recurrent allusions to "sin" and "grace," the concept of *hamartia* can have little place, and that of *hubris* certainly none. The same order of deficiency, I should say, appears in the attitude toward comedy, a Bergsonian seriousness which amounts nearly to disapproval. The smile is tolerated, not laughter; humor, not wit. Laughter is thought to leave emptiness, indifference, fatigue.

"Concepts clearly and explicitly expressed are thereby condemned to death. The question then becomes how long they can be kept alive in the death-house." This note is found among the recently published posthumous papers of a distinguished American poet.<sup>4</sup> Both definition and analysis are of course excluded from true literary study by the system of Mr. Foss — in a manner already axiomatic with poets and quite familiar to philologists in the aesthetic of Croce. Nevertheless, I shall conclude this discussion by turning to the key term *metaphor* itself — in its more limited grammatical and rhetorical sense — and inquiring whether in fact a semantic beginning can be made in this direction without some quite special invocation of symbolic fixity.

One of the best features of Mr. Foss's book is that, in emphasis at least, it is anti-primitivistic. It is true we find such Crocean statements as that words do not (like building stones) come first, but language itself, the living and complete communication. Reflection, we are told, transforms living words into fixed objects, mechanical atoms, which must be drawn by a new force of unification back into the vortex of living process. But the view of time held in this philosophy prevents this meaning from being very emphatically chronological, and an alignment of concept with ritual and orgy leads naturally to the view that primitive man has a strong tendency to abstraction; that only classical maturity restores the metaphoric unity thus lost. The whole question about metaphor seems to me, however, to have been already very much obscured by other writers

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<sup>4</sup> John Peale Bishop, "Obscurity, Observations and Aphorisms," *The Western Review*, xii (Winter, 1948), 72.

on symbolic form in their primitivistic speculations upon the birth of language. To call a man a pig, or his sweetheart a flower, is not, says Mr. Foss, to utter a metaphor — it is an exaggerated, one-sided statement, a symbolic reduction to a *tertium comparationis*. Perhaps so, though I doubt it is so in all contexts. The point I would now make is that the alternative to such simplified metaphor, as expounded by the writers on symbolic form and perhaps implicitly by Mr. Foss, assumes the shape of something which has been called "prelogical" thought and which I believe might as well be called "solid" or "opaque" thought. It is a kind most conveniently imputed either to very young children or to prehistoric men, because no documents can be adduced which really illustrate it — if indeed it can be conceived. We must "imagine," says Owen Barfield, a time when *spiritus* or *pneuma* "meant neither *breath* nor *wind*, nor *spirit*, nor yet all three of these things, but when they simply had *their own old peculiar meaning*."<sup>5</sup> And the following reverie of Herder *Ueber den Ursprung der Sprache* is quoted by Cassirer:

A certain savage sees a tree, with its majestic crown; the crown rustles! That is stirring godhead! The savage falls prostrate and worships! Behold the history of sensuous Man... and the easiest transition to abstract thought!<sup>6</sup>

The tree is not compared to a king, but mistaken for one. Or is the idea of king, or tree-king, actually born at this moment? Did real kings later wear crowns because they looked like treetops? Or had the savage previously seen a real king with a crown? If the latter is the case, one must suppose that the stage of culture is rather late for the mistake to be made.

These questions — to which answers are scarcely available — are not the same as an inquiry into the status of metaphor or simile as we actually find it in literary documents — early and late. Here what is most striking is a kind of imaginative thickness which subsists not in confusion but in distinction — whether explicitly in the *qualis-talis* of the classical epic simile or implicitly in the highly figurative nature images of

<sup>5</sup> Owen Barfield, *Poetic Diction, A Study in Meaning* (London, 1928), p. 64.

<sup>6</sup> Ernst Cassirer, *Language and Myth*, trans. Susanne Langer (New York, 1946), p. 85.

modern romantic poetry — the charged landscapes of a Collins or a Wordsworth. In these latter there is always a statable, if not stated, element of difference (between the tree and the god, the "setting suns" and the "presence"), and in this difference, tension, without which indeed there would be no poetry.

It is understandable and excusable that in so densely written a synthesis as that of Mr. Foss few quotable examples of "true" metaphor should appear. I am not sure how much can be made of the two examples from German which are adduced — *Klangfarbe*, *Farbton* — tone-color or timbre, color-tone or tint. But Mr. Foss's way of describing these hyphen metaphors is worth notice.

Two symbols are here brought together, not in a comparison by which the one, as unfamiliar, shall be clarified in its relation to the other as the familiar one. On the contrary, two highly familiar words are brought together in order to question their familiarity and in order to arrive at a problematic insight of a still unknown unity. (p. 59)

So far as this refers to the main locus of interest in the metaphor, we may wish to say that the statement might be much better illustrated from a wide range of twentieth-century poetry than from the relatively prosaic examples adduced. It would seem actually that the function of *-farbe* is mainly to explain a certain quality of *Klang*, and conversely for *Farb* and *-ton*. Yet the general implication is correct — that in understanding imaginative metaphor we are often required to consider not how B (vehicle) explains A (tenor), but what meanings are generated when A and B are confronted or seen each in the light of the other. The emphasis may be on likeness or on the opposite, a kind of antithesis or repugnance (as in a recent French instance, *Cheval de Beurre*) — but in any case a co-presence of likeness and difference is necessary for the indefinite radiations of meaning, the solidity and concreteness, for which metaphor is prized.<sup>7</sup>

<sup>7</sup> Mr. Foss's remarks on the proverb "Among blind men the one-eyed is king" seem to me excellent. They carry further than he would admit for the whole discussion of metaphor. "The true significance of the proverb goes far beyond the blind, the one-eyed, and the king: It points to a wisdom in regard to which the terms of comparison are only unimportant cases of reference" (p. 56).

"The dissimilarity," observes Mr. Foss, is so strong that psychoanalysis has been "inclined to interpret the 'sick simile' as an attempt to hide, dissemble, disguise the truth, or to shock the audience by the violence and inadequacy of the analogy" (p. 53). But this difference lies not between a concept and the vastness of merely possible negations, the *apeiron*, but between two formulated and namable concepts, and it is their distinctness from each other which keeps the metaphor alive. "Every language," says Mr. Foss, "is full of 'dead metaphors' ". But how else shall we define the dead metaphor except as a collapsed metaphor, one in which A and B have come together so completely that only one is left holding the field? When the distinctness or definable separateness of A and B have been merged, then it is that the "tension" of which Mr. Foss likes to speak has been relaxed, the "problem" — another of his chiefly honored conceptions — has been if not solved (no worse fate could be named), at least dismissed.

The theorist of poetry tends more and more today to make metaphor the irreducible element of his definition of poetry, but in attempting to define metaphor itself he tends furthermore to shoot off into an endlessly interesting series of metaphors. Let me draw to a conclusion by calling attention to one of the most precise attempts to define metaphor which I know, that of W. B. Stanford in his *Greek Metaphor: Studies in Theory and Practice*, Oxford, 1936. Metaphor, he says, is:

the process and result of using a term (X) normally signifying an object or concept (A) in such a context that it must refer to another object or concept (B) which is distinct enough in characteristics from A to ensure that in the composite idea formed by the synthesis of the concepts A and B and now symbolized in the word X, the factors A and B retain their conceptual independence even while they merge in the unity symbolized by X. (p. 101)

And this process, result or situation is one upon which Mr. Stanford confers the happily conceived metaphoric name *stereoscope of ideas*. A poem itself, I shall venture to add, is the context of Mr. Stanford's description. It is a structure of verbal meaning which keeps a metaphor alive — i.e., which holds the focal terms A and B in such a way that they remain distinct and illuminate each other, instead of collapsing into literalness. (That this structure itself will participate in the



color of the metaphor, may be asserted but need not here be specially elaborated.) It is just when metaphors are carelessly repeated out of context that they most readily become simplified, literal, and cliché.

Metaphor then may be a roundabout way of exhibiting concepts, but it does seem to do so, and to be a function of concepts. It is very easy to underestimate the role of the conceptual or definite in poetry, and along with it all that may have suffered from time to time, in a loosely derogatory way, the names of "convention", "pattern", or "rule". "Stylization" is a term which ordinarily has conceptual affinities but which Mr. Foss appropriates to his own cause and uses along with "metaphor" in far too pronounced an antithesis to the technicalities. In poetry it is with the established techniques that the poet works, and if his "expressiveness," as Mr. Foss would say, transcends these, it is not as if they were left behind. The Petrarchan conceits, to take a fairly simple and well understood instance, remain and operate as conceits in the fun which they provide for Sidney, Spenser, or Donne. If they lost their conceited (i.e. conceptual) character, they would have no poetic power.

In the second chapter of Croce's *Aesthetic* occurs an analogy which may well be used to summarize the difference between the "metaphoric" or boundless view of poetry, and the conceptual or classically definite.

He who conceives a tragedy puts into a crucible a great quantity, so to say, of impressions: expressions themselves, conceived on other occasions, are fused together with the new in a single mass, in the same way as we can cast into a melting furnace formless pieces of bronze and choicest statuettes. These choicest statuettes must be melted just like the pieces of bronze, before there can be a new statue. The old expressions must descend again to the level of impressions, in order to be synthesized in a new single expression.

The statuettes as well as the scraps of junk lose their form when melted down for the new statue — all the little pieces are equal, all equally sacrifice whatever form they have. There is a certain sense in which this makes a valid analogy for poetry, where indeed all the elements are employed in such a way as to suffer a transformation into something *more than* their simple, abstracted, and dictionary selves. But there is

too a certain very important sense in which this is not a valid analogy — a sense indicated in the words *more than* of the last sentence. For the words which are fused into a poem have their new value not by losing their first or ordinary meanings but only by retaining these. And this is also true of the various labels, proverbs, maxims, epigrams, conceits, and verse forms which in a more conspicuous and rococo sense make up the repertoire of conventions and ready-made meanings which the poet uses. It would be much more appropriate to liken these to the gargoyles, finials, monuments, and other carved ornaments of a cathedral, than to statuettes whose form disappears as they enter the statue. The proverb, the verse form, may have poetic virtue in its new context only by some ironical twist — but it has to retain its original character in order to be twisted.

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## Notes and Observations

### CONTEMPORARY MARXISM

The last five years have seen the publication of vigorous new Marxist journals devoted to creative as well as critical analysis of philosophical and cultural issues.<sup>1</sup> Not least important has been the rising awareness of the Marxist revolutionary world outlook in the wider intellectual milieu and consequently the development of critical appraisals of its methods, its assumptions, its assertions, and its effects.

Marxism makes its analysis on many levels: it has its epistemology and its ontology, its ethics and its esthetics, and each is intimately related to its philosophy of history and its conception of science. It is a systematic philosophy of culture which claims the empirical sanctions of scientific method and the skeptical toughness of naturalistic rationalism. And finally it draws its philosophic inheritance from the major streams of western philosophic, scientific and religious thought.<sup>2</sup>

#### I

In his posthumous *Existence and Inquiry*,<sup>3</sup> Otis Lee offered a keen and sympathetic discussion of the ontological and

<sup>1</sup> For example: *The Modern Quarterly* (London), *La Pensée* (Paris), *Voprosy Filosofii* (Moscow), *Der Aufbau* (Eastern Berlin), *La Nouvelle Critique* (Paris), and *Studi Filosofici* (Rome) and the continuing American *Science and Society* (New York). Philosophical articles are frequently contained in the political journals *Communist Review* (London), *Labour Monthly* (London) and *Political Affairs* (New York), translations from the Russian in *Philosophy and Phenomenological Research* (Buffalo), *Soviet Studies* (Oxford), and *Current Digest of the Soviet Press* (Washington) among others. Critical articles appear in many journals, of course, general as well as philosophical.

<sup>2</sup> On the latter, see John Lewis, "Communism the Heir to the Christian Tradition," Joseph Needham, "Science, Religion and Socialism," and John MacMurray, "Christianity and Communism: Towards a Synthesis" in the symposium *Christianity and the Social Revolution*, ed. John Lewis, Karl Polanyi, and Donald K. Kitchin (London: Gollancz, 1935, and New York: Scribner's, 1936). A critical Roman Catholic study is given by F. J. Sheed, *Communism and Man* (New York and London: Sheed and Ward, 1938).

<sup>3</sup> Chicago: University of Chicago Press, 1949, esp. Part II *Dialectic*, pp. 91-188.

epistemological bases for Marx's dialectical materialism. He states the challenge and the claim, after analyzing idealism from Kant to Hegel and the dualism of 17th and 18th century materialism, in these words:

The materialistic theory of nature was inadequate, and idealism had no theory at all. The solution was to extend the idea of process from spirit to nature, where it was more and more urgently demanded by the course of empirical discoveries and, at the same time, to apply the new logic to the interpretation of natural processes. This transformation was the achievement of dialectical materialism (pp. 151-152).

Lee has given a clear account of the distinction between idealistic and materialistic dialectics, stressing that two philosophies which give opposed answers to the great question of the relation of spirit to nature, of thinking to being, will disagree on concrete and specific issues as well. Foremost in these disagreements is the attitude toward science. Dialectical materialism is scientifically oriented and, indeed, it claims to have ended philosophy in the old sense, to have participated in "the liberation of natural science and the social sciences from the ægis of philosophy . . . of itself a progressive process both for the natural and social sciences, and for philosophy itself." Lee's understanding is, moreover, in harmony with the views of Soviet Marxists at their important philosophical conference of June 1947. Social and political comments aside, we find in Andrei Zhdanov's address the crucial character of Marxism as a philosophy, e.g.,

Marxist philosophy, in distinction from former philosophical systems, is not a science standing above other sciences, but an instrument of scientific research, a method, permeating all the sciences of nature and of society, and enriching itself with the data of these sciences in the course of their development. In this sense, Marxist philosophy is the fullest and most decisive negation of all preceding philosophy. But to negate, as Engels said, does not mean simply to say no. Negation includes succession, signifies absorption, critical reworking and unification in a new higher synthesis, of everything advanced and progressive that has been attained in the history of human thought.<sup>4</sup>

<sup>4</sup> Paragraph 25 of Zhdanov's speech *Voprosy filosofii I* (*Questions of Philosophy*), No. 1 (1947). A full but careless translation appeared in the American Communist journal *Political Affairs* 27 344-366 (1948). The conference was specifically called to consider the recent *History of*

In these recent Soviet discussions, which have taken place in other cultural and scientific fields as well as in philosophy, we have another instance of the militant Marxist repudiation of views which derive from a different conception of human nature and an alternative view of social history. The cultural attitudes and intellectual formulations which are opposed may be implicit in the non-Marxist society or they may be explicitly developed in that society's theoretical statements: it makes no difference to the Marxist, for his partisan outlook is grounded on the empirical generalization that all human history, political, social, economic *and intellectual*, is ultimately the history of the struggle between social classes, taking place against a background of pre-social (physical and biological) facts. An exploration of this basic attitude has been made by Professor Lee's colleague, Vernon Venable, in his exhaustive study *Human Nature: The Marxian View*,<sup>5</sup> a book which is the surest account in English of the Marxist philosophy of man and society. With philosophic maturity and scientific standards, Venable has written, largely in the words of Marx and Engels, what these two prolific writers never had time to set forth:

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*Western European Philosophy*, by G. Alexandrov (Moscow, 2nd ed., 1946; trans. by Hugh McLean Jr. with the editorial assistance of C. W. Hendel and an introduction by P. E. Corbett, New Haven: Yale Inst. of International Studies, 1949) and to formulate criteria for an adequate text to be used in Soviet universities. This naturally implied a basic reconsideration of the role and nature of philosophy in a society guided by Marxist principles. The new journal *Voprosy filosofii* appeared thenceforth; and of interest in this connection is the outline of the new work on the history of philosophy which appeared in its second issue over the names of a committee of philosophers appointed after the conference: "The History of Philosophy," Prospectus of the Book," *Voprosy filosofii*, I, No. 2, 1947 (trans. by W. Edgerton, under the title *A Soviet History of Philosophy*, Washington: Public Affairs Press, 1950). An essentially political commentary appears in P. E. Corbett, "The Alexandrov Story," *World Politics* 1 161-174 (1949), a more philosophical one in J. and M. Miller, "Andrei Zhdanov's Speech to the Philosophers: An Essay in Interpretation," *Soviet Studies* 1 40-51 (1949); and a western Marxist commentary in M. Cornforth, "The Recent Soviet Discussion on Philosophy," *Modern Quarterly* 3 22-29 (1947-48).

<sup>5</sup> New York: A. A. Knopf, 1946, and London: Dennis Dobson, 1948.

a coherent and systematic exposition of the nature of man, viewed as a member of the cosmic natural order and within the structure of social history. Obviously a work of humanity, objectivity, and enormous care, this book presents philosophy, psychology, anthropology and sociology, history, and ethics with a clarity of distinctions and a skill of commentary which philosophers, so prone to the writing of commentary, will admire. Venable is especially helpful on the primary role of labor in Marxist thought, as the natural source of man's self-alienation, and "the primary basic condition for all human existence, and this to such an extent that, in a sense, we have to say that labour created man himself."<sup>6</sup> He has valuable sections on human nature as changing and on man as agent. Finally Venable furnishes the essential detailed groundwork for intelligent discussion of Marxist ethics.

## II

Ethics has in many ways been the chief philosophical approach to Marxism in post-war years. The re-evaluation of the Communist's moral position has been carried out in several recent writings: M. Merleau-Ponty's *Humanisme et Terreur: Essai sur le problème communiste*;<sup>7</sup> Paul Tillich's essays "Storms of our times" and "Marxism and Christian Socialism" in *The Protestant Era*;<sup>8</sup> Stephen Spender's essay in *The God That Failed: Six Studies in Communism*;<sup>9</sup> H. Stuart Hughes's *An Essay for Our Times*;<sup>10</sup> Christopher

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<sup>6</sup> From Engels, *The part played by labour in the transition from ape to man*, p. 5, (Moscow: Foreign Languages Pub. House, reprinted 1949) and also in *Dialectics of Nature*, p. 279 (N.Y.: International Pub., 1940). Cf. the provocative paper by Paul Weiss, "The Social Character of Gestures," *Phil. Rev.* 51 182-186 (1943).

<sup>7</sup> Paris: Gallinard, 1947 (*Les Essais* XXVII).

<sup>8</sup> Chicago: University of Chicago Press, 1948, pp. 161-184 and 237-260.

<sup>9</sup> New York: Harper's, 1950 and London: Hamish Hamilton, 1950.

<sup>10</sup> New York: A. A. Knopf, 1950.



Caudwell's *Studies in a Dying Culture*; <sup>11</sup> J. D. Bernal's selected essays *The Freedom of Necessity* <sup>12</sup> particularly "The challenge of our time", "Liberty and the individual: the scientist's view" and "Dialectical materialism"; Howard Selsam's "The Ethics of the Communist Manifesto"; <sup>13</sup> John Lewis's "The Great Moral Muddle" <sup>14</sup> and "Marxism and Ethics"; <sup>15</sup> sections of the posthumous work of Antonio Gramsci, e.g. *Lettere dal carcere* and *Il materialismo e la filosofia di Benedetto Croce* (*Opere* I and II); <sup>16</sup> E. Pennati's *L'Etica e il marxismo*; <sup>17</sup> R. Garaudy's polemical *Le communisme et la morale*; <sup>18</sup> a very important and stimulating appraisal in M. Rader's recent text *Ethics and Society: an Appraisal of Social Ideals*; <sup>19</sup> F. S. C. Northrop's *The Meeting of East and West*; <sup>20</sup> the UNESCO symposium *Human Rights* <sup>21</sup> and the special number of *Esprit* entitled "Marxisme ouvert contre marxisme scolastique." <sup>22</sup>

In the American edition of his selected writings, Professor Tillich has reissued the short essays on political philosophy and

<sup>11</sup> London: The Bodley Head 1948 (3rd imp.) and New York: Dodd, Mead, 1950. See esp. the essays "Pacifism and violence: a study in bourgeois ethics" (pp. 96-128), "Love: a study in changing values" (pp. 129-157) and "Liberty: a study in bourgeois illusion" (pp. 193-228).

<sup>12</sup> London: Routledge and Kegan Paul, 1949.

<sup>13</sup> In *A Centenary of Marxism* pp. 22-32 which is *Science and Society* 12 no 1 (1948).

<sup>14</sup> *Modern Quarterly* 1 55-72 (1946).

<sup>15</sup> *Modern Quarterly* 5 195-224 (1950).

<sup>16</sup> Milan: Einaudi, 1947 and 1948 respectively. An important short excerpt from the first work appeared as "Benedetto Croce and his concept of liberty," *Science and Society* 10 283-292 (1946). Gramsci, who died after 11 years in jail, is unquestionably the major philosopher of modern Italian Marxism. A man of humane breadth and wide appreciative learning, he also recalls the divorce of philosophy from science, so typical of Italian scholarship (investigators like Enriques to the contrary notwithstanding). For a brief appreciation, see G. Muratore, *Science and Society* 13 79-81 (1948-49).

<sup>17</sup> Florence: No. 9 in the series "Orientamento" pub. by *La Nuova Italia*, 1948.

<sup>18</sup> Paris: Editions Sociales, 1947.

<sup>19</sup> New York: Henry Holt, 1950, esp. ch. 13, pp. 315-363.

<sup>20</sup> New York: Macmillan, 1946.

<sup>21</sup> New York and London: Allan Wingate, 1949.

<sup>22</sup> *Esprit* mai-juin, 1948 (issue 5-6), pp. 705-1000.

the theological view of man which he discussed at length in *Die sozialistische Entscheidung* nearly two decades ago. Now, as then, he finds the moral and political dialectic of the class struggle to be the central *Protestant* (as well as the central economic) problem of the modern world. For what is the vital core of the Protestant principle? Both in its historical origin and in its reflection of an eternal human attitude, it "contains the divine and human protest against any absolute claim made for a relative reality, even if this claim is made by a Protestant Church".<sup>23</sup> And in its bitter protest against that perversion of human life which characterizes the laborer's share of developing and developed capitalist society, the proletariat has voiced the universal condemnation of an existent social fact, a judgment which coincides with the Protestant understanding of that fact. Indeed the proletarian situation, as Tillich calls it, is the biblical situation incarnate today, one which inescapably focuses on the unity of the whole man and the whole community, man as body-and-soul, community as economy-and-culture. This is a unity "in the face of which every attempt to save the soul and leave the body to perdition must appear to be frivolous. 'Body' is to be understood as representing the whole vital sphere. The exclusion of it from salvation in some types of Christianity is in itself perversion and guilt."<sup>24</sup>

In Tillich's view there are four major alternative claimants to social loyalties. The Catholic's sacramental and almost purely religious way of overcoming man's estrangement from his universal Creator is mediated for him by the hierarchical guarantee. Humanistic rationalism, which sees man as self-creating and self-changing, contains an idealistic estimate of the power of reason and a corresponding neglect of social realities in its Utopian social theories. Karl Marx's historically grounded recognition of hitherto inescapably catastrophic human existence prophesies the social possibility of ending this "pre-history" and creating a cooperative era of self-conscious human existence, a possibility which is to be actu-

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<sup>23</sup> *Ibid.*, p. 163.

<sup>24</sup> *Ibid.*, p. 167.

alized by dialectical necessities *within* the changing order rather than by extra-historical gods, devils, blind contingencies, or unconscious mechanisms. Finally, the genuine Protestant emphasizes man's need to overcome his bondage to individual and social tragedy by a courage to be in and responsible to existence, to unmask every cultural and religious hypocritical "false consciousness," to affirm the historically transcendent goal of human history.

In the face of a social system which produced two world wars, chronic periods of economic and moral unemployment, and poverty inextricably along with productive riches, Protestantism clearly must choose between the Protestant principle and historical Protestant churches. For, despite himself, the bourgeois Protestant has been worshipping a falsified if not man-made God in a class — and state-made church. "Protestantism should take socialism seriously as an expression of the proletarian situation (which) is not something optional to which attention may or may not be given. It is rather the point at which history itself has posed the question to Protestantism, whether it will identify itself with the traditional forms in which it has been realized, or whether it will accept the challenge that confronts it in the situation of the proletarian masses and that calls in question a large part of its present-day life and thought" (*Ibid.*, p. 181). The crucial ethical question of social action and social structure becomes the heart of concrete moral theology. Tillich's own response is "religious socialism," a socialism which means historical materialism and dialectical sociology, the proletarian critique of industrial society, the necessary role of the working class, in short, classical Marxism.

The doctrines in which Marxism and Protestant Christianity concur according to Tillich are four in number: (1) The test of any theory about man and any teaching for man must be the empirical one of his historical existence, (2) Man's nature is social, (3) Truth may be recognized only to the degree it is acted upon, and, moreover (4) the actual character of the knowing process is ultimately a decisive conditioning influence

on the very possibility of accurate knowing. As a corollary to (1) and (2), man's salvation as well as his downfall are functions of his society's salvation or downfall. As Tillich says, "Perdition and salvation are universal and historical. The individual as individual cannot escape the former and cannot reach the latter".

Tillich begins to draw apart from Marx, with the doctrine of the creative boundary as the source of new possibilities. This undercuts the essential determinism in Marxist social ethics as well as in Marxist ontology. Engels' phrase "the freedom of necessity" expresses a determinism which cannot be reformulated in terms of *transcendent* necessity combined with worldly indeterminism, but must rather be a dialectical version of the semantically clear determinism set forth so well by the University of California associates.<sup>25</sup> The divergence is again one of the transcendent aspect of religious views when Tillich criticises Marx's analysis of the role and origin of religion. Marxism can admit no absolute transcendence beyond time, beyond space, beyond politics and beyond history. It finds no meaning in these words except as metaphorical recasting of temporally finite social analyses, some on behalf of an existing social order, others on behalf of revolutionary social movements. For Marx religion is wholly ideological, never an aspect of total knowledge. For Tillich, "history is fulfilled above history, not within history", a truth which is in no contradiction with the concrete nature of man as the subject of fulfillment. It is not that Marx has made a mistaken analysis; it is rather an incomplete one resting on the historical facts of a distorted religion which has "often become a historical power in the sense in which Marxism describes it." Tillich is confident that it is prophetic religion alone which can absorb the truths of the Marxian analysis, which can cast out the perversions, artificialities and hypocrisies of most historically-formed religion, and which can successfully modify the Utopian optimism of Marxist politics. Only recognition of the universal corrupted

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<sup>25</sup> See the chapter "Freedom of the will" in *Knowledge and Society* (New York: Appleton-Century, 1938).

human situation, transcending sociological changes, as it does in Christian eyes, will strike the roots of man's regeneration. Eternally corrupted but the vehicle of "divine self-manifestation": thus the dialectic appears in Tillich's Protestant socialism.

The Protestant principle totally rejects dogmatism. It will be a scientific Marxist movement because Professor Tillich has assented to Marxist social thought on empirical grounds. Likewise, the creation of a dogmatic anti-Marxism would be rejected: "particularly in the present situation, in which Marx is pushed more and more into the background, has the question of ideological anti-Marxism increased in importance." It will, moreover, be Marxist on two philosophical grounds as well: the epistemological need for existential and experimental thinking; the methodological need for dialectical thinking. Liberalism's recurring failure to recognize the contrary currents of modern society compels the religious socialist to reject all neo-liberal attempts at a harmonistic (the word is Tillich's) re-interpretation of capitalistic society. As he points out, such attempts are bourgeois in social function, idealistic in their increasing separation from social facts, strifeless only in their Utopian autonomous paper existence. "Religious socialism, in the spirit of prophetism and with the methods of Marxism, is able to understand and to transcend the world of today" (*Ibid.*, p. 260).

### III

What can the tough-minded philosopher do to resolve the issue raised by Tillich's robust assertion and E. M. Forster's grudging half-acceptance, half-rejection of the Marxist philosophy as practical ethics? For Forster wrote:

You might have guessed that I am not a Communist, though perhaps I might be one if I was a younger and a braver man, for in Communism I can see hope. It does many things which I think evil, but I know it intends good. I am actually what my age and my upbringing have made me — a bourgeois... I do care about the past. I do care about the preservation and the extension of freedom...

We are all harder and more disillusioned now... and no political creed except communism offers an intelligent man any hope. And

those who are, like myself, too old for communism or too conscious of the blood to be shed before its problematic victory, turn to literature, because it is disinterested. Action? Yes, no objection to action if it tinkers in the right direction, stops tattoos for instance.<sup>26</sup>

The problem of choosing sides, indeed the resentment at the need for choice, and the principles which a liberal from a parliamentary democracy brings to the consideration of the dynamics of socio-economic situations, have furnished agonies of conscience for contemporary humanitarian thinkers. Some are philosophically naive, others subtly sophisticated; all have oriented their thinking about two major issues: the concept of power in human relations, and the relation of ends to means. The thinkers are many — Russell, Silone, Koestler, Gide, Rosa Luxemburg, the Webbs, Laski, and Hook, Dewey, Maritain, Niebuhr, Neurath, Croce, Sartre, Lukacs, Merleau-Ponty and Gramsci, to name some from diverse loyalties. On this occasion it is possible to notice the experiences of one man alone for he is thoughtful, humane, concretely emotive, a person who has wrestled with the difficulty of writing these down in all their facets. He is not a scientist nor a laborer nor a philosopher but a poet: Stephen Spender.

Among Spender's many writings, there are two principal ones for the present purpose. He wrote *Forward from Liberalism*<sup>27</sup> to show why he believed that "Communism is the struggle to inspire the standards of our civilization with the political will not only to survive the attacks of a barbarism growing up in our midst, but also to go forward and create a more extensive civilization which will grow from the roots of a classless society"<sup>28</sup> and nearly fifteen years later he contributed to *The God That Failed* an essay relating his matured conviction that "Communism is the belief that society can be altered by turning men into machines for altering society...., that the Communist Parties of the world as they are organized today could

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<sup>26</sup> From "Liberty in England" (1935) and "A note on the way" (1934) collected in *Abinger Harvest* (New York: Harcourt Brace, reprinted 1947).

<sup>27</sup> London: Gollancz, 1936 and New York: Random House, 1937.

<sup>28</sup> *Ibid.*, p. 15.



not make a better world (and) might even make a far worse one".<sup>29</sup> In each he records both the obvious and the insidious pains of dealing with a brutal world and it is quite clear that the recognition of this reality was just as present to the communist Spender as to the present libertarian Spender. Why then did he accept the Communist position? The primary judgment is one of immense moral indignation. "A system which destroys the surplus production which cannot be sold for a profit is a system of organized social crime against humanity" and "to the communists, politics begin with the abolition of the system of private property, which is exactly where, for the liberal, they end". Moreover, "the link between communists today and the political idealists of a hundred and fifty years ago . . . is the understanding they both share that 'politics is Brotherhood', upheld against the accepted political practice of their times".<sup>30</sup> His ethical response is set against an empirical generalization.

"It is true that democracy puts through reforms, but a hundred years of such reforms shows that a reformist policy only scratches the surface of the real forces that govern our lives... for the real political problems... are the fight of the ordinary man for bare existence in a world of natural abundance and mechanical over-production. Any political system which does not grapple with these questions is bound to be superseded. Brutal realities expose the weakness of liberal democracy, the flimsiness of our illusions of freedom in a world where one man is free to make huge profits from selling armaments that will be used against his countrymen, another only to die on the battle-field. Yet if we restrict or abandon the genuine though limited rights of liberal democracy, we are confronted with the fact that there are only two political ways left: that of the exploiters or the exploited, that of the capitalist rivals and rulers or the 'Brotherhood of man'... To a great extent, the nature of the classless society will be determined by the nature of those who now fight for it." <sup>31</sup>

His theme is entwined with the thesis that since all life is political life, all affirmation will have a relation to social realities.

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<sup>29</sup> *The God That Failed*, pp. 271 and 269.

<sup>30</sup> *Forward from Liberalism*, pp. 26, 5, 4. Spender's quotation is from William Blake.

<sup>31</sup> *Ibid.*, p. 10 and p. 27.

Spender couched his argument in terms of the artist and his cultural sources, his inescapable social involvement and his implicit drive toward a *classicism* of the entire people. But the force of his argument is distinctly the desire for a scientific analysis of society which would solve Shelley's self-consciously felt inadequacy to be able "to realize that which we know."

It is not the escape from bitter social actuality which causes the romantic poet to fail but rather that the tremendous imaginative values of the poetic Heaven, of social morality and political justice, do not "really reconcile us to the ill done to man by man in the real world." For Shelley agreed with the dialectical view that true social knowledge will entail progressive social action. The romantic and the liberal can set the stage; the political scientist and fighting socialist must act the play. Will the "progressive" social action be ethically good? There is no general answer to this question. These views are those of Marx but Marx's tremendous admiration for Darwin<sup>32</sup> was not accompanied by a belief in the Victorian idea of progress whether that of a "social Darwinist" or of a rising imperialist. It is not Marx's idea to deny that "history is on our side"<sup>33</sup> but to affirm this while denying a mechanical view of automatic progress and the static non-human character of its causal lines. Spender agreed that now is a unique occasion in history, not because of any inevitability in the realization of values, but because of the genuine chance

<sup>32</sup> Marx wanted to dedicate *Das Kapital* to Darwin but did not receive the latter's permission.

<sup>33</sup> This phrase is the title of Joseph Needham's address to the Modern Churchmen's Conference, 1937; reprinted in his selected essays under the same title with revisions added in 1943. (New York: Macmillan, 1947). Needham, a preeminent embryologist, here adduces the evidence for a natural drive toward collectivist developments. His social and philosophical writings deserve serious study, being the fusion of scientific philosophy, prophetic this—wordly religion, historical understanding, and revolutionary fervor.

now to control the total environment so as to serve all human interests simultaneously. But the transition will not serve all *present* human interests, for the transition period is the very epitome of the ages leading to this first chance: it is itself an age of conflicting interests, interests whose proposed simultaneous realization involve a contradiction. Only a dialectical view of social change will permit the liberal to have his system of intrinsic values and at the same time to escape from romanticism, futility, or reactionary alliance.<sup>34</sup>

But within a decade Spender came to regard the Communist Party as an association of abstract thinkers who neglect the bloody realities, regarding their party's views as real and justified, all others' as "abstract examples of out-moded theoretical positions." And when this vice of distortion is combined with power, only a de-humanization of the human product can result. Not that power, as such, is an evil, but "power is only saved from corruption if it is humanized with humility." Spender reports: "Often I found that a human and sympathetic Communist was a bad Communist to the extent that he was human and sympathetic, and that he was well aware of this himself." He finds there are four kinds of Communists today: the abstract thinkers for whom unbrotherly methods are a historical necessity; those happily deluded about the Soviet Union and the Communist activities; the workers of many countries "who have nothing to lose except their chains, who are fighting against capitalist exploitation, and for whom bread is more important than freedom"; and the professional police, commissars, and spies who are the only Communists really informed about the prison camps and the trials, the brutality, cynicism, and self-righteousness.

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<sup>34</sup> One need only to read his scathing comments on the liberal historian, H. A. L. Fisher, to see the attitude which entails this latter analysis. (*Forward from Liberalism*, 121-125).

The core of the viewpoint expressed by Marxists is that the basic drives which spur men's actions are ever changing, and the ultimate source of the conflicting interests are the conflicting relations to economic structure. Not an abstract "power"-drive invariant with respect to cultures and independent of economic power-relations in particular, but, instead, culturally determined drives, here tyrannical and hateful of class or individual, there cooperative, here fiercely competitive for job or profit, there competitive for societal recognition and for solid achievement. To Spender now this is too risky a social law. It may be that a centralized political machine is needed to create the society of economic justice; but he does not believe that the Communists are capable "of doing anything except to establish the rule of a peculiarly vindictive and jealous bureaucracy". A socialized and centrally directed art and cultural life would seem to be doomed. "If art teaches us anything, it is that man is not entirely imprisoned within his society".

The heart of his argument is that the means which are being used are bad, so bad as to be destructive, while they are being used, of the ends sought. The ends are no longer the ends of humanism: the *classical* Marxist *theory* fatally omits a convincing theoretical description of a successful transition, the Marxist *practice* has revealed that men of the fourth category dominate those of the first three.

The charge is stated in other terms but with the same essential content by Koestler in his influential *The Yogi and the Commissar* and by Russell in his *Authority and the Individual*. John Lewis summarizes it in his biting sarcastic Marxist review of the latter: <sup>35</sup> "Koestler was faced with the same problem which Russell fails to solve. The Commissar wants to put everything right except human personality. The Yogi wants to put human personality right by itself, leaving everything else to follow. Both fail completely to unite the rights of the individual and the necessities of organization. The

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<sup>35</sup> "Bertrand Russell and the Illusion of Freedom", *The Modern Quarterly* 4 341-365 (1949). He draws heavily on the work of Caudwell.

Yogi in fact, far from being a saint, sometimes turns into a man-eating tiger. Koestler admits that no clumsy synthesis of Saint and Commissar, of individual and authority will suffice, 'The two elements do not mix. That may be one of the reasons we have made such a mess of our history'."

Increasingly, the critics of contemporary Communist political action and social ethics are polarized into two groups. On the one hand, there are those who retain their moral denunciation and socio-economic critique of existing society, its interpersonal relations and its inter-group relations, its decadence and its Babbity, its hypocrisy and its delusions. These thinkers have only the choice between an active role as creators of a third alternative, politically, culturally and philosophically, and a passive individualistic role as, to use Fischer's term, "Double-Rejectors".<sup>36</sup> On the other hand, there are those who have reverted either to a philosophic defense of pervasive social individualism, economic included, based on a largely a priori conception of a natural psychic atomism in the manner of Hobbes, or to weaker moral reasoning to the "lesser evil".<sup>37</sup>

Spender expresses the dilemma of a libertarian socialist in particularly apt form. "Neither side, in the present alignment of the world, represents what I believe to be the only solution of the world's problems. This is for peoples and nations who love liberty to lead a movement throughout the world to improve the conditions of the millions of people who

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<sup>36</sup> The philosopher and politician, Crossman, epitomizes the first: "it has taken two world wars and two totalitarian revolutions to make it (Western democracy) begin to understand that its task is not to allow Progress to do its work for it, but to provide an alternative to world revolution by planning the cooperation of free peoples"; Fischer may represent the second: "The 'Double-Rejector' of the evil of dictatorship and the evil of democracy should mind the human being... a free spirit, unfettered by economic bonds or intellectual bias, can turn his back on the evils of both worlds and strive, by improving his own, to create a condition of peace, prosperity, and morality in which dictatorships on either side of the so-called Iron Curtain would finally suffocate and perish". (*The God That Failed*, pp. 11, 229, 224.)

<sup>37</sup> Russell's *Power and Authority and the Individual* illustrate both of these; M. Polanyi's *Science, Faith and Society* the first.

care more for bread than for freedom; thus raising them to a level of existence where they can care for freedom. The interests of the very few people in the world who care for the values of freedom must be identified with those of the many who need bread, or freedom will be lost." <sup>37a</sup>

#### IV

The Marxist message today is chiefly polemical in character but not thereby less well argued nor less philosophical. With the single exception of certain Marxist philosophical works written in the Soviet Union (and the possible addition of some in China), Marxist *political* philosophy has been most concerned to emphasize again and again the principles which were set forth in the Marxist classics. The great critique of capitalist society and the many little critiques of various reformist movements are the principal content of this recent writing, a content of new documentation and modern phrasing, new applications and contemporary battles. An article by Lewis (n.15) illustrates the best of the new presentations of principles, the essays on Marxism in the UNESCO symposium (n. 21) analyze the relations between bourgeois and Marxian conceptions of human rights, and Caudwell's various brilliantly written studies in contemporary society <sup>38</sup> epitomize the Marxist philosophy of culture at its provocative best.

Ethical notions are social; they arise in the social aspects of the universe and hence they are natural. Like any other philosophical concepts they both reflect and guide the realities of cooperative life, varying as the patterns of culture vary, frequently supported by ingrown fears or sanctifying theology, but in any case arising out of "the way men grapple with nature to get a living". Thus ethics is neither supernatural, nor of an intrinsic nature, nor arbitrary. Dr. Lewis remarks that naturalistic anthropology in the West has so often given no answer

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<sup>37a</sup> *The God That Failed*, p. 272.

<sup>38</sup> Ref. (n. 11) and also his posthumous *Further Studies in a Dying Culture* (London: The Bodley Head, 1949).



to the question of the origin of social organization and moral codes. It is unable to explain the variability and development of morality and the conflicts between morally based systems; and, most telling of all, he finds this scientifically based bourgeois naturalistic relativism to have "no standard by which to evaluate the different forms of ethical life". The Marxist must reject this view, leading as it does to moral cynicism and a mechanical functionalist reduction of the spiritual life. Yet he rejects, at the same moment, the essentially dualistic view of the idealist who finds no value which is not derived from a supernatural source. This counterpoising of a false mechanical materialism and an inadequate dualistic idealism is a recurring theme throughout the Marxist philosophy, sometimes stated sympathetically,<sup>39</sup> more often harshly.

Is there a categorical imperative for communism? Marxism rejects such a question while asserting its own historical continuity with those who asked it. It finds it impossible to answer on an abstract level, impossible to *have* attained it on a concrete level for it implies the universal application of ideals in societies of particular interests. The good can only significantly mean the hedonic relation between men and their actual or potential socio-physical environment, but, if it is not to be trivially degraded into the purely desired, it must be construed as a *rule* and not as a fact, or bit of knowledge. The good, being really "good for", is always relative to actual present needs, on the one hand relative to the given state of technical and social developments and on the other varying within that state according to the class position of the individual for whom the good is existing. Master and slave, landlord and peasant, employer and worker — the history of class societies is the history of the co-existence of incompatible and justified systems of practical ethics: incompatible in the sense that the primitively felt needs of different groups are empirically incompatible, justi-

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<sup>39</sup> See, for example, John Lewis' pamphlet, *Marxism and Modern Idealism* (London: Lawrence and Wishart, *Marxism Today*, Series No. 4, 1944).

fied in the sense that any ethical system is justified as the socially formulated expression of interests.

Yet it is not correct to consider Marxist ethics as wholly particularistic. As Professor Rader expresses it, Marx finds in modern society the deepest inversion of values and in a reversible way: the dehumanization and depersonalization of mankind, or, in Marx's word, self-alienation; and the valuation and attribution to material objects of social relationships and spiritual properties, in his terms, fetishism. The humanistic basis of this critique is evident; and the solution is universal and objective at the present stage of history. Thus the social or class relativism of all earlier *actual* moralities, the Utopian or supernatural absolutism of all previous *ideal* moralities, are merged in the contemporary identification of laboring man, laboring class, and society. Indeed this identification has a more profound role in the Marxist outlook than in most conceptions of social reform. As Tillich recently remarked, it is the Communist's courage to be a part of the social whole, while thereby assuring himself of greater realization of his essential humanity, which enables him to reject the existentialist despair.<sup>40</sup> Indeed the Marxist critique of existentialism rests in its constructive aspects on precisely this foundation, while in its destructive forms it ascribes the Western European concern with *Existenz* to the rootless individualism and social anarchy of a decaying socio-economic order.<sup>41</sup> The ontological

<sup>40</sup> This Communist courage, insuring that the Marxist morality is metaphysically grounded in a materialist ontology of man and society, was examined in Professor Tillich's recent 1950 Terry Lectures at Yale University, (to be published in 1951, New Haven, Yale University Press).

<sup>41</sup> Y. Frid, *A Philosophy of Unbelief and Indifference: Jean-Paul Sartre and Contemporary Bourgeois Individualism* (trans. M. N. Roy from *Soviet Literature*) in *Mod. Quarterly* 3 215-223 (1947); R. Garaudy, *Literature of the Graveyard* (New York: International Pub., 1948), a polemical essay; and the philosophical critique of G. Lukacs, *Existentialism* (trans. H. F. Mins) in the symposium *Philosophy for the Future*, ed. R. W. Sellars et al. (New York: Macmillan, 1949, pp. 571-590).

solipsism of a Sartre takes root in a society which understands no categories transcending the individual, save those which involve complete irrational escape into the transcendence beyond all of nature and all of history.

The primitive notion of Marxist ethics is the individual interest, an immediately felt want, which differs from general interest theories of ethics in its concurrent assertion that morality can exist only in a social context. It is not merely that the conflict of right and wrong arises when there is another to be wronged; it is "that the very fact of social life and social division of labor naturally, by an internal necessity, brings it about that the activity of man is directly aimed at the satisfaction not merely of his own personal needs but of those of society as well."<sup>42</sup> Marxist ethics is a science based on the psychology of motivation, an ethics of the actual and the possible. The conflict of class interests and the drive toward a universal resolution are seen in the context of historical determinism. As Rubinstein expresses it,

To satisfy his own needs, man must make the satisfaction of social needs the direct goal of his actions. In this way, the ends of human action are diverted from their immediate connection with his individual needs and — at first only obliquely, mediately — what is important for society begins to determine his behavior. In principle this implies the transition to new, specifically human forms of motivation which are both genetically connected with organically conditioned needs and qualitatively diverse from them. Through his social organization, man becomes a member and representative of the social whole; social motives become his personal motives... he rises above the level of merely organic existence and attains the plane of social existence.<sup>42</sup>

The Communist moralist of today sees the pain and turmoil of existentialist *angoisse* as the negative side of the heart-break and severity which characterize the positive construction

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<sup>42</sup> S. L. Rubinstein, *Soviet Psychology in Wartime* (trans. by H. F. Mins, Jr., from *Under the Banner of Marxism* 1943, no. 9-10, pp. 44-61) in *Phil. and Phen. Res.* 5 181-189 (1944).

of a soviet society. He returns, again and again, to one of Marx's most categorical insights. "The individual is the moral entity. The expression of his life is therefore an expression of the life of society."<sup>43</sup>

The large number of recent Marxist works on philosophical matters deserve serious attention. I hope to return to these, and to the critical writings, at another time.

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<sup>43</sup> *Ökon. u. Philos. Mss.*, p. 115 (quoted by Lewis, ref. n. 15).



## ORIENTAL PHILOSOPHY

By far the most outstanding recent event in American-Oriental philosophy was the Second East-West Philosophers' Conference held at the University of Hawaii, June 20 to July 29, 1949, with help from the Rockefeller, McInerny, and Watumull Foundations. Meeting ten years after the first East-West Conference, forty-eight professional philosophers, aiming "to study the possibility of a world philosophy through a synthesis of the ideas and ideals of the East and the West," reached "ten areas of agreement" regarding metaphysics, others in ethics, and suggested that, regarding methodology, "a true synthesis might involve the development of an entirely new method totally unlike those... now operating." (See *A Preliminary Report of the Second East-West Philosophers' Conference*, by Charles A. Moore, U. of Hawaii Occasional Paper No. 52, for details, "achievements," and abstracts of conference papers.) A volume giving a full report of the Conference, including all formal papers, is being published. Many persons, both among those who did and those who did not attend, are already looking forward hopefully to a third conference ten years hence.

Another major event, still anticipated, and growing out of the first, is the expected publication of a new journal of comparative philosophy, *Philosophy East and West*, edited by Charles A. Moore, probably in April, 1951. Early plans called for a Board of Editors composed equally of Easterners and Westerners, with special editors for some countries, such as India, China, Japan, Ceylon. This project, which has many well-wishers, may prove to be one of the outstanding philosophical achievements of the century.

The Silver Jubilee Session of the Indian Congress of Philosophy, which will be held in Calcutta this December, is preparing a special volume of papers celebrating the occasion. Americans have neglected their opportunity to promote intercultural understanding by joining this Congress since, apparent-

ly, the first U.S. membership was received only last year. Membership includes subscription to *The Philosophical Quarterly*, now in its 23rd volume (and not to be confused with the new St. Andrew's University, Aberdeen journal which received the same name due to ignorance of the existence of this official organ of the Indian Congress), edited by G. R. Malkani, Director of the Indian Institute of Philosophy, at Amalner. Indians have not been given to advertising themselves, while European and American philosophers, busying themselves with Western issues, have rather consistently overlooked a great philosophical tradition, rich and varied in outlooks and problems, and anticipating in many respects the solutions arrived at later by Western thinkers.

Turning to books, we may note that the past year marks another milestone in the epoch-making *History of Indian Philosophy* by Das Gupta. Volume IV has just appeared (Cambridge U. Press, 1949). Volume I (out-of-print) is being reprinted, and a fifth volume is still hoped for. Persons interested in the oft-neglected Jain tradition will appreciate the *Shri Mahavira Commemoration Volume, 1948-49*, the first of a new series being published by the Mahavir Jain Society, Belangung, Agra; its publication, half in Hindi, may serve as a warning that now is an opportune time to promote U.S.-Indian contacts, since future growth of Hindi as a national language may erect further barriers. Two books by Indians living in the U.S., *The Upanishads* by Swami Nikhilananda and *Hindu Psychology* by Swami Akhilananda, both published by Harpers, appear to symbolize another trend which may develop into oriental philosophers teaching and publishing in the U.S., to say nothing of foreign authors seeking U.S. publishing markets.

T. M. P. Mahadevan's "Indian Philosophy and the West" (*The Philosophical Quarterly*, Oct., 1949), fearlessly and ingeniously takes up the cudgels against G. W. Cunningham's misconceptions appearing in a recent *Philosophical Review* symposium. Mahadevan politely but bluntly asserts that "the Indian philosopher is behind no one in making the fullest possible use of the critical powers of the understanding in arriving at the truths of metaphysics," and that "the best that



India has to offer in the realm of philosophical thought can pass the test that the West prescribes." Fighting on the West's own ground (quoting Bradley, Taylor, etc.), Mahadevan gives evidence of Western recognition of Indian contentions and criticizes Western failures to be open-minded and empirical about dreams, ecstatic intuitions and scriptural experiences: "any satisfactory philosophical view is likely to result from a consideration of the whole of experience, and not from an analysis of only a segment of it." He ridicules the failure of the Western quest for certainty through intellect because of its repudiation of intuition. Certainty can be felt only intuitively. Successful intellectual processes begin with immediately apprehended data and end only with immediate apprehension of a conclusion as satisfying its quest. Western thought is lost in in-betweens, or in the intellectual means, while it forgets what is most important, i.e., intuitive ends. Other recent *Quarterly* articles illustrate the range of current interests: "The Potential and the To Be Realized," "The Aesthetic Gestalt," "Towards Philosophy of Transcendental Personalism," "J. W. Dunne and the Misconception About Relativistic Time," "Marx's Theory of Progress," "Faith in an Inference and Faith in a Person," "Indeterminacy and Free Will."

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## Books received

Gavin Ardley: *Aquinas and Kant*. London and New York: Longmans, Green and Co., 1950. 256 pp. \$3.50.

Samuel H. Beer: *The City of Reason*. Cambridge, Mass.: Harvard University Press, 1949. 227 pp. \$5.00.

Arnold Bergstraesser: *Goethe's Image of Man and Society*. Chicago: Henry Regnery Co., 1949. 361 pp. \$4.50.

*Goethe and the Modern Age* (Full text of all 22 lectures delivered at the Aspen Goethe Bicentennial Convocation, 1949). Edited by Arnold Bergstraesser. Chicago: Henry Regnery Co., 1950. 402 pp. \$5.00.

Crane Brinton: *English Political Thought in the Nineteenth Century* (reprint). Cambridge, Mass.: Harvard University Press, 1949. 312 pp. \$4.50.

Crane Brinton: *Ideas and Men, The Story of Western Thought*. New York: Prentice-Hall, Inc., 1950. 587 pp. \$6.00.

Oscar Brunler: *Scientific Philosophy of Evolution*. Los Angeles: DeVorss & Co., 1950. 44 pp. \$2.00.

Rudolf Carnap: *Logical Foundations of Probability*. Chicago: The University of Chicago Press, 1950. 607 pp. \$12.50.

Frederick Copleston, S.J.: *History of Philosophy*, Vol. 2, Medieval Philosophy: Augustine to Scotus. Westminster, Md.: The Newman Press, 1950. 614 pp. \$4.50.

F. M. Cornford: *The Unwritten Philosophy and Other Essays*. Edited, with and introductory memoir, by W. K. C. Guthrie. New York: Cambridge University Press, 1950. xx + 139 pp. \$2.75.

Maurice Cornforth: *Dialectical Materialism and Science*. London: Lawrence & Wishart Ltd., 1949. 63 pp. 1s 6d.

G. G. Coulton: *Five Centuries of Religion*, Vol. 4. New York: Cambridge University Press, 1950. 833 pp. \$9.00.

S. J. Curtis: *A Short History of Western Philosophy in the Middle Ages*. Westminster, Md.: The Newman Press, 1950. 286 pp. \$3.25.

A. d'Abro: *The Evolution of Scientific Thought From Newton to Einstein*. Second edition, revised and enlarged. New York: Dover Publications, 1950. 481 pp. \$3.95.

T. V. Fleming: *Foundations of Philosophy*. Sydney: The Shakespeare Head, 1949. 210 pp. 15s.

Philipp Frank: *Modern Science and its Philosophy*. Cambridge, Mass.: Harvard University Press, 324 pp.

Gottlob Frege: *The Foundations of Arithmetic*. Original text and translation by J. L. Austin. Oxford: Basil Blackwell, 1950. 119 + 119 pp. 16s.

J. W. Gough: *John Locke's Political Philosophy*. New York: Oxford University Press, 1950. 204 pp. \$2.50.

Sidney Greenberg: *The Infinite in Giordano Bruno*. With a translation of his dialogue: "Concerning the Cause, Principle, and One." New York: King's Crown Press, 1950. 203 pp. \$3.00.

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